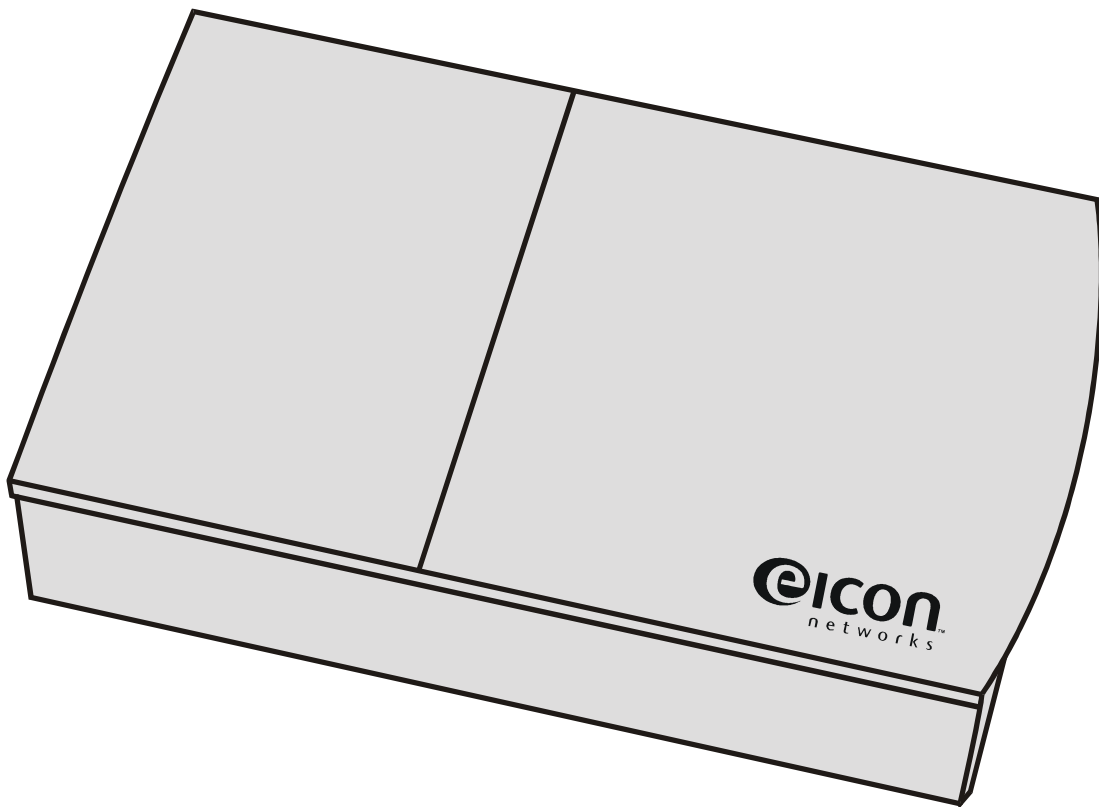


Eicon 1530 WAN Router



User's Guide

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Introduction

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Overview

Thank you for purchasing the Eicon 1530 WAN Router.

The Eicon 1530 is an intelligent Ethernet-to-WAN router that supports PPP, Frame Relay, and X.25 protocols. The Eicon 1530's VHSI port can transfer data at speeds from 2400 bps to 2048 kbps, depending on the interface used.

Hardware Features

The Eicon 1530 features a 36-pin VHSI (Very High Speed Interface) port, that supports both V.24 and V.35 interfaces. The intelligent controller on the Eicon 1530 detects the type of cable connected to the VHSI port and the actual board configuration, and will then select the matching interface.

The Eicon 1530 can be used on a LAN and can also be used as a DHCP server. You can also connect the Eicon 1530 directly to a single computer (crossover cable required, sold separately).

Upgradable Firmware

The Eicon 1530's firmware (a set of software instructions that tells the device how to operate) is stored in flash memory on the device. This makes it easy to upgrade the firmware when new versions become available.

Ease of Use

Changing settings is a straight-forward process, as parameters are accessed via a web browser. You can also make changes using the command line interface, which is accessed using a telnet application or programs such as HyperTerminal, through the Ethernet connection.

About this Guide

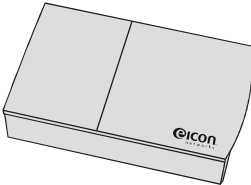
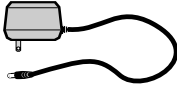
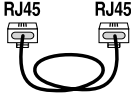


This guide describes how to install and configure the Eicon 1530 on any computer capable of support an Ethernet card and TCP/IP. The installation instructions compliment those found in the Quickstart Guide, which is also included with your package. This guide also describes how to make changes to certain features.

Note: *This guide does not describe how to configure the device for any one particular networking situation. For information on what any particular setting should be, consult your network administrator.*

For instructions on setting up communications protocols and using applications that access the external network, consult the documentation provided with your software.

Package Contents

Your package should contain the following:

<div>Eicon 1530</div> <div></div>	
<div>Power Adapter</div> <div></div>	<div>Ethernet Cable (Blue)</div> <div></div>
<div>Quickstart Guide</div> <div></div>	<div>CD-ROM</div> <div></div>

VHSI cables are not included with your Eicon 1530. Cables can be ordered from Eicon Networks, or you can build your own (see the User's Guide).

Note: *The blue cable is a straight-through Ethernet cable and is used to connect the Eicon 1530 to a network hub. To connect to a single computer, a crossover cable (sold separately) is required.*

About the Eicon 1530 CD-ROM

The Eicon 1530 CD-ROM contains the following:

- User's Guide in PDF and HTML formats.
- Quickstart in PDF format.
- Release notes in text format.
- Installers for Adobe Acrobat Reader (for reading PDF files) and Microsoft Internet Explorer.

Specifications

Hardware Features

- VHSI (Very High Speed Interface) port, supports V.24 and V.35 interfaces
- Ethernet 10BaseT RJ45 port
- AUX port (DB9 V.24 serial interface) (currently unsupported)
- Power jack
- Hard Reset button
- Indicators lights
- Flash memory for convenient firmware upgrade (if available)

VHSI Port (Synchronous)

- 36-pin high-density D-type connector
- Auto-detection of the following interface types:
 - V.24 (EIA RS232-C)
 - V.35
- Speeds: 2400 bps to 2048 Kbps, depending on interface
- Protocol support: PPP, Frame Relay, X.25, Frame Relay

Indicator Lights

- Power status
- VHSI port status
- AUX port status (currently unused)
- Ethernet connector status (located on the connector itself)
- Ethernet activity (located on the connector itself)

Protocol support

- PPP:
 - PPP compression (PPP CCP, PPP LZS-STAC, MPPC, Ascend LZS)
 - Security: PAP, CHAP, MS-CHAP
- X.25:
 - CCITT/ITU compliance: X.25, X.32, and X.121 (1984)
 - Up to eight X.25 virtual circuits (includes PVCs and SVCs)
 - PVC and SVC support with inactivity timeouts
 - Compression (Eicon Stacker, CISCO, Bay Networks)
- Frame Relay:
 - IP over Frame Relay (RFC 2427)
 - Maximum of 8 DLCI
 - Routing between DLCI
 - Congestion management (FECN, BECN)
 - Extended LSN
 - Automatic LMI detection
 - Congestion control (FECN & BECN)
 - Frame Relay compression (FRF.9)

LAN Protocol support

- IP routing (dynamic and static)
- IP Network Address Translation (NAT)
- IP spoofing and packet filtering
- DHCP Server and DHCP Relay Agent
- BOOTP, TFTP, Telnet, ARP, and DNS

Environmental Requirements

- Operating temperature: 0°C to +50°C
- Storage temperature: -20°C to +70°C
- Operating humidity: 0 to 90% (non-condensing)

Power Requirements

- External AC wall mount adapter providing 9-15VDC/1A
- Power consumption: 5 Watts maximum

Warranty

- Five years

Certification

- CE
- FCC Part 15 Class B
- CSA/NRTL (UL)
- Industry Canada

Management Utilities

- Web-based configuration interface
- Command line interface

Packaging Contents

- Eicon 1530 WAN Router
- Straight-through Ethernet cable (blue)
- Power adapter
- QuickStart Guide
- Eicon 1530 CD-ROM (contains documentation)

Note: *A VHSI port cable is not included, but can be ordered separately from Eicon Networks.*

Setup

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System Requirements

Before you begin, review the system requirements, as outlined below.

If you are connecting the Eicon 1530 directly to a computer, the following is required:

- A 10Base-T Ethernet network interface card, properly installed and configured to use the TCP/IP protocol. A 100 Mbps Ethernet card can be used if the card supports auto-sensing.
- TCP/IP communications protocol configured to obtain its IP address automatically (DHCP client), and not configured to use a DNS server.

If you are unsure about these topics, consult the documentation for your operating system or network adapter for more information.

Web Browser Requirements

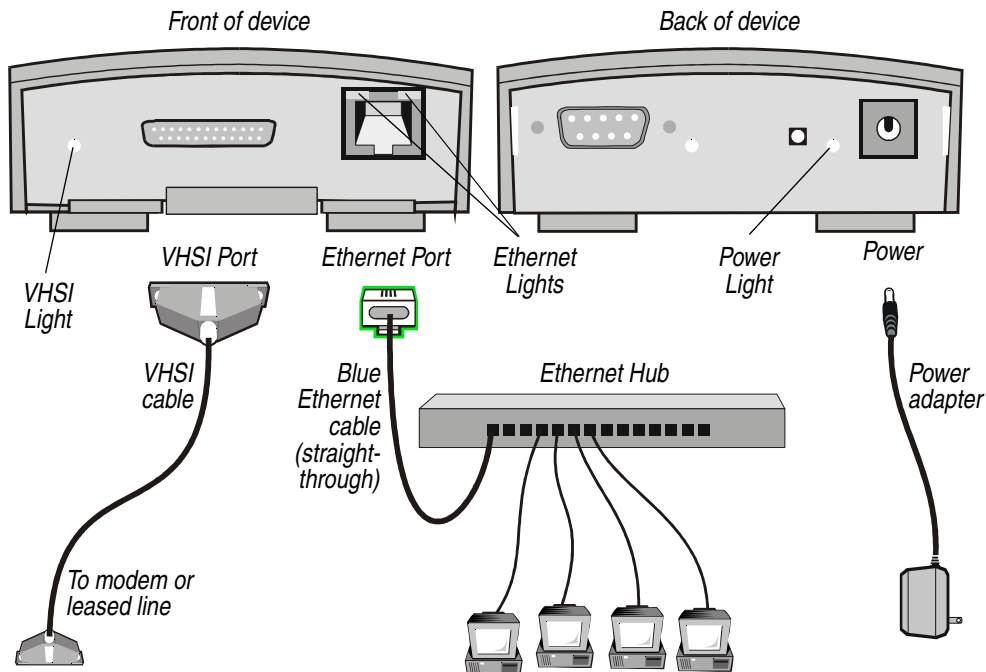
The Eicon 1530 is configured via web pages stored on the device itself. To access the web interface, you must have Netscape Navigator 4 or Microsoft Internet Explorer 4, or later.

Additionally, your Web browser must be configured to connect to the Internet via a local area network (LAN) and not through a proxy server.

An installer for Microsoft Internet Explorer is included on the Eicon 1530 CD-ROM for all Windows operating systems except Windows 3.1. Windows NT 4.0 requires SP3 or later, available from <http://www.microsoft.com/>.

Step 1: Connect the Cables

Leave your computer on when connecting the cables.



1. Connect the power adapter. The Power indicator light should turn green.

Note: For more information on indicator lights, see [Ports and Indicator Lights](#) on page 29.

2. Connect your VHSI Cable.

Connect the appropriate end of the cable to the VHSI port of the Eicon 1530, and connect the other end to your modem or leased line connector.

Note: VHSI cables are not included with your Eicon 1530. Cables can be ordered from Eicon Networks, or you can build your own (see the User's Guide).

3. Connect the Ethernet cable.

LAN	Plug one end of the included blue Ethernet cable into your network hub, then plug the other end into the Eicon 1530's Ethernet port.
-----	--

Single Computer	Note: To connect the Eicon 1530 to a single computer, a crossover cable (sold separately) is required.
-----------------	---

Plug one end of your crossover cable into the Ethernet port on your computer, then plug the other end into the Eicon 1530's Ethernet port.

The green light at the top left corner of the Ethernet port should turn on when the cable is connected properly.

What's Next?

See [Step 2: Verify Computer TCP/IP Settings](#) on page 14.

Step 2: Verify Computer TCP/IP Settings

The Eicon 1530 settings are changed via a series of web pages that reside on the Eicon 1530 itself. However, to access these pages, your TCP/IP settings must be configured appropriately, as described below.

IP Address Recommendations

- Set your Ethernet card to acquire its IP address **dynamically** if:
 - You are connecting the Eicon 1530 to a single computer.
 - You are installing on a LAN and wish to use the Eicon 1530 as your DHCP server.

The Eicon 1530, which has a built-in DHCP server, will assign an IP address to your computer's Ethernet card. Most network cards are configured this way by default.

- Set the IP address of your Ethernet card to the address **192.168.1.2** and subnet mask to 255.255.255.0, with the default gateway left blank, if:
 - Your LAN already has an existing DHCP server.
 - Your LAN uses static IP addressing.

By changing your IP address and subnet mask to these values, you are ensuring that your computer is on the same subnet as the Eicon 1530, whose IP address is 192.168.1.1 by default. Later you will change the Eicon 1530's IP address to one more appropriate for your LAN.

Note: For information on changing TCP/IP settings, see [Changing TCP/IP Settings to DHCP](#), or consult the documentation included with your operating system.

LAN Setup Notes

- Due to the wide range of networking equipment and topologies that are in use worldwide, your configuration needs may fall outside the instructions presented here. Contact your network administrator or other support person to help you with the installation.
- The Eicon 1530's internal DHCP server is enabled by default. However, if the Eicon 1530 detects the presence of an existing DHCP server, the Eicon 1530 will disable its own DHCP server automatically. To re-enable the Eicon 1530 DHCP server, remove the other server from the LAN and press the reset button on the Eicon 1530.

Restarting your computer

For some operating systems, you must restart your computer after changing TCP/IP settings. If you are using the Eicon 1530 as a DHCP server on your LAN, or if you have connected the Eicon 1530 to a single computer, restarting will force your computer to acquire a new IP address.

If you are using Windows, you can do the following:

- Windows 95/98/Me: Click 'Start', 'Run', type 'winipcfg', and click 'OK'. Click 'Renew All'.
- Windows NT/2000/XP: Launch a command prompt, type 'ipconfig /release' and press Enter, then 'ipconfig /renew' and press Enter.

What's Next?

See [Step 3: Log in to the Eicon 1530](#) on page 15.

Step 3: Log in to the Eicon 1530

Whenever you wish to change settings on the Eicon 1530, you must first log in, as shown below.

1. Launch your web browser and click 'File', 'Open'.
2. Enter **192.168.1.1** as the web page to open.
3. Click 'OK'. You should see the 'Log in' page.

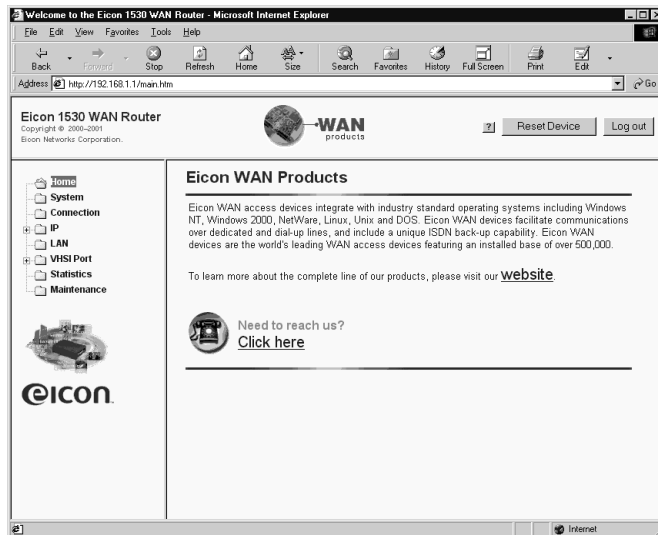


Note: If you do not see the 'Log in' page, see [Troubleshooting](#) on the following page.

4. Click the 'Log in' button.

Note: By default there is no password.

5. The main menu should appear, as shown below.



What's Next?

See [Step 4: Modify VHSI Settings](#) on page 17.

Troubleshooting

If you cannot access the 'Log in' page:

- Verify that the Ethernet cable is connected properly. The green light at the top left of the Ethernet port should be on (see [Ports and Indicator Lights](#) on page 29 for more information).
- Verify that your computer's TCP/IP settings are configured according to your situation. As the Eicon 1530's default IP address is 192.168.1.1, you will not be able to access the web pages unless your computer is on the same subnet (assigned an IP address that starts with 192.168.1 and is using the same subnet mask).
- Verify that your web browser is configured to use the LAN and not a dial-up connection, and that your browser is not set to use a proxy server. See [Adjusting Browser Settings](#) (below) for instructions on how to do this.

If you cannot access the 'Log in' page over a **LAN**:

- Verify that your computer is on the same physical segment as the Eicon 1530.
- Verify that the Eicon 1530 is the only device on your LAN using the address 192.168.1.1. To see if this is the case, remove the Eicon 1530 from the LAN, then PING the address 192.168.1.1. If you receive a reply, a device on the LAN already has this address. In this case, the best solution is to connect the Eicon 1530 to a single computer as described below.
- In general, if you cannot access the 'Log in' page, connect the Eicon 1530 to a single computer for configuration purposes. Later on you can reconnect the Eicon 1530 to the LAN. Note that a crossover cable (sold separately) is required; the blue cable included with your package will not work when connecting directly to a single computer.

Adjusting Browser Settings

If you are not able to access the configuration pages, verify your browser settings as described below. Note that the steps may vary slightly depending on the browser version used.

- Internet Explorer version 5 or later:
 - From the 'Tools' menu, select 'Internet Options', click the 'Connections' tab, then click 'Setup'.
 - Select the option 'I want to set up my Internet connection manually', then click 'Next'.
 - Select 'I want to connect through a local area network', then click 'Next'.
 - Clear all proxy options, then click 'Next'.
 - Clear the option 'Connect to the Internet immediately', then click 'Finish'.
- Internet Explorer previous to version 5:
 - From the 'View' menu, select 'Internet Options', then click the 'Connection' tab.
 - Verify that 'Connect to the internet using a local area network' is enabled.
 - Verify that the 'Proxy Server' option is disabled.
- Netscape Navigator (do one of the following):
 - Under Options, click 'Network Preferences', then 'Proxies'. Verify that the 'No Proxies' option is selected.
 - Under the 'Edit' menu, click 'Preferences', 'Advanced', then 'Proxies'. Verify that the 'Direct Connection to the Internet' is enabled.

Once finished making changes, click 'OK', then retry accessing the web configuration pages.

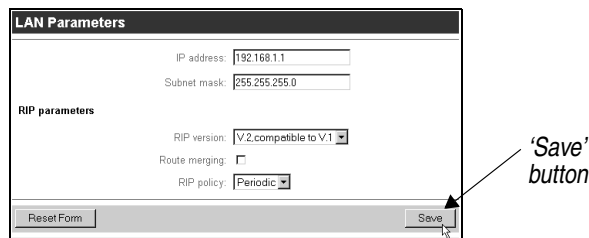
Step 4: Modify VHSI Settings

Once you have logged into the Eicon 1530 web interface, the first setting you should verify is the choice of protocol for the VHSI port (set to 'X.25' by default). The protocol should be selected first because all profile settings (which define particular connections) are deleted when the protocol is changed.

About the Web Interface

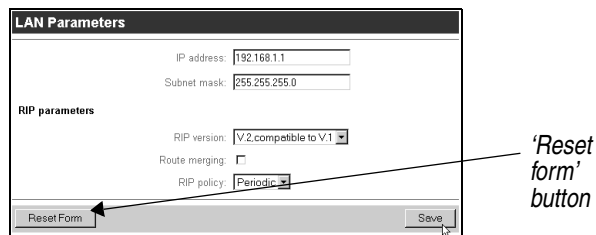
The Eicon 1530 settings are changed via web pages that reside on the Eicon 1530 itself.

- **When making changes using the web interface, make sure to click the 'Save' button on each page.** The 'Save' button is located at the bottom right of each web page. If you move to another page without saving, your changes will **not** be saved to the device.

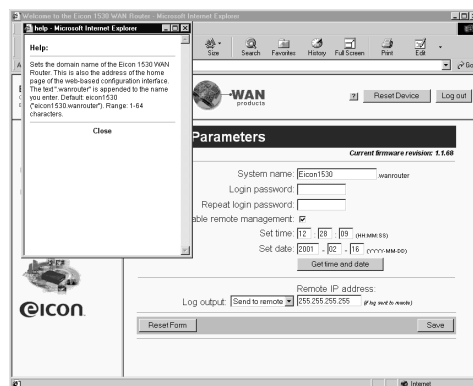


Once saved, the new settings will not take effect until you reset the device. It is not necessary to do a reset until you have completed all the steps in this quickstart.

- The 'Reset Form' button, located at the bottom left of each page, reverts all settings in the current page back to the original values when the page was opened.



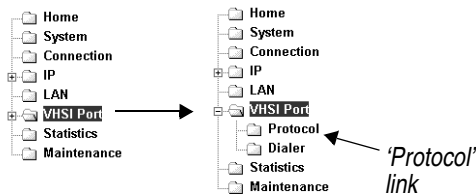
- Clicking a setting name displays context-sensitive help.



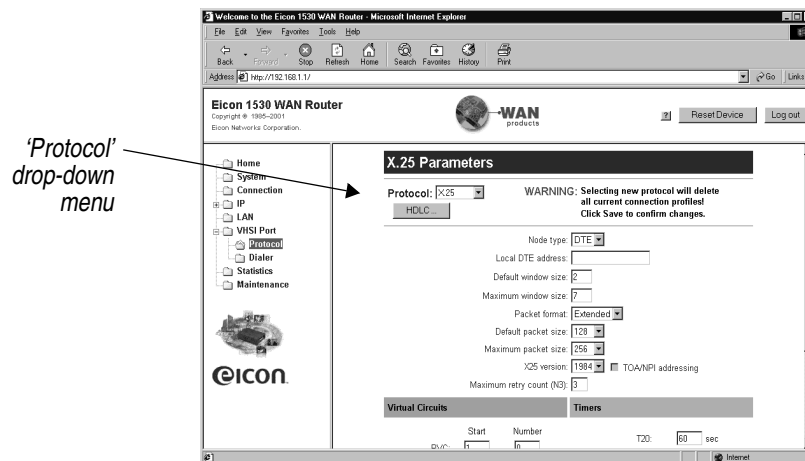
- Once you have finished making changes to all settings, you must click the 'Reset' button, located at the top of the browser window, for the settings to take effect.

Choosing a VHSI Protocol

1. From the Link List (the menu at the left of the screen), click on the small '+' next to 'VHSI Port' to expand the VHSI Port group, then click the 'Protocol' link.



2. From the 'Protocol' drop-down menu, select a protocol.



3. Click the 'Save' button, located at the bottom right of the web page, when finished.

Note: If you do not click 'Save', the changes will be lost when you move to another page.

Modifying Other VHSI Settings

After choosing a protocol, make changes to your VHSI settings, if required. The settings presented will depend on the protocol chosen.

Note: You can bring up context-sensitive help for each setting by clicking on the setting name. Also, when making changes, ensure that the new settings are consistent with those of your network provider.

- If the protocol is set to X.25 or Frame Relay:
 - Verify all settings as presented on the Protocol page (this should be the current page) and click 'Save'.
 - If required to make changes to HDLC or Static DLCI settings, click the 'HDLC' (for X.25) or 'Static DLCI' (for Frame Relay) link (located at the top of the Protocol page), make any required changes, then click 'Save'.
- If the VHSI port is connected to a dial-up line, click 'Dialer' in the Link List. Make any required changes, then click 'Save'.
- Click 'VHSI Port' in the Link List. Make any required changes, then click 'Save'.

What's Next?

See [Step 5: Create a Profile](#) on page 19.

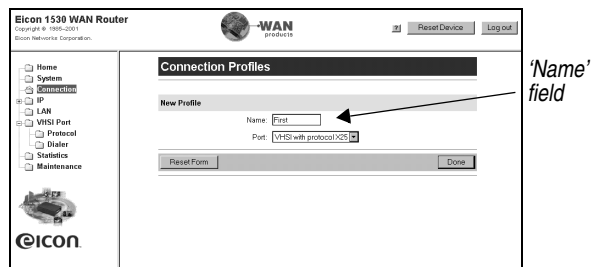
Step 5: Create a Profile

Settings for particular connections are contained in profiles on the Eicon 1530.

Note: When you change protocols for the VHSI interface, all profile information is lost. To avoid having to re-enter configuration information, choose the protocol first, as described at the beginning in [Step 4: Modify VHSI Settings](#) on page 17.

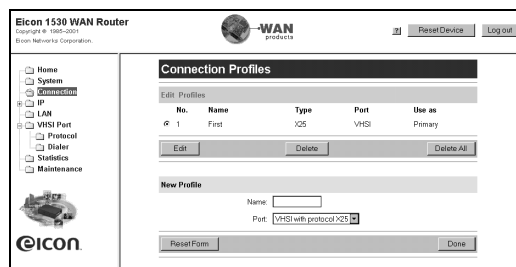
Creating a Profile

1. From the Link List, click the 'Connection' link. The 'Connection Profiles' page appears.
2. To add a profile, enter the name in the 'Name' field, then click the 'Done' button.



Note: With X.25 or Frame Relay, you can create up to eight profiles. For PPP, you can create only one profile.

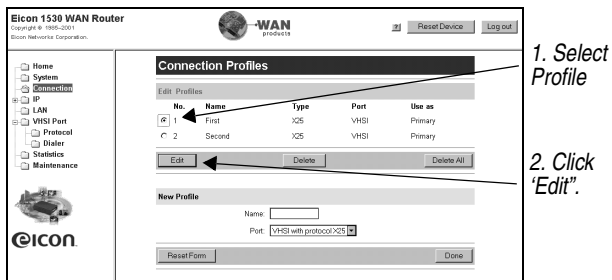
3. The web page for your new profile will be displayed.



4. To edit the profile, make sure it is selected and click 'Edit'.
5. Make the required changes to the profile. Be sure to scroll down and inspect all parameters. In particular:
 - If you are using X.25, make sure to enter the remote DTE address and remote IP address.
 - If you are using Frame Relay, make sure the local DLCI number is the same as the remote DLCI.
 - If you are using PPP, make sure to enter the IP information at the bottom of the page.
6. Click the 'Save' button (located at the bottom right of the page) when finished.

Switching Between Profiles

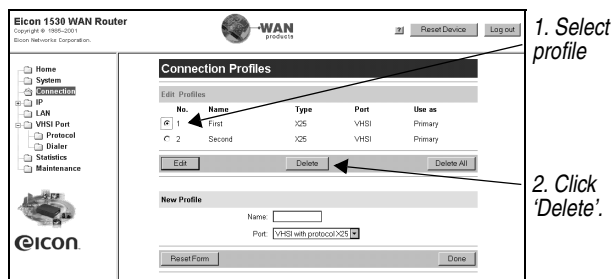
When you have more than one profile, selecting the associated radio button allows you to select which profile to edit.



Deleting Profiles

To delete a profile:

1. Select the profile and click 'Delete'.



To delete all profiles, click the 'Delete All' button.

What's Next?

See [Step 6: Modify LAN Settings \(if required\)](#) on page 21.

Step 6: Modify LAN Settings (if required)

The following changes may be required if you are connecting the Eicon 1530 to a LAN.

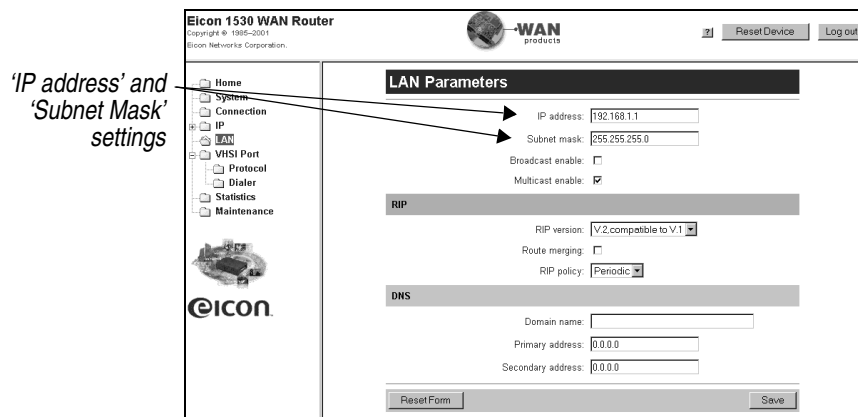
Change Device IP Address

The Eicon 1530's default IP address of 192.168.1.1 may or may not be suitable for your LAN. If you are unsure as to whether or not the IP address should be changed, consult your support personnel. Some guidelines are given below.

- **Eicon 1530 as DHCP server:** You do not have to change the Eicon 1530's IP address.
- **Existing DHCP server:** You must change the Eicon 1530's IP address so it is outside the range of dynamically assigned ones, or you must reserve the address.
- **Computers with fixed IP addresses:** You must change the Eicon 1530's IP address so that it corresponds to what is available on your network.

To change the device IP address:

1. From the Link List, click 'LAN'. The Eicon 1530 displays the LAN parameters page.
2. Modify the 'IP address' and 'Subnet Mask' settings to addresses appropriate for your LAN.



3. Click the 'Save' button.

Disable DHCP

If your LAN has an existing DHCP server, you should disable the Eicon 1530's DHCP server.

Note: The Eicon 1530 automatically de-activates its own DHCP server if an existing DHCP server is detected. To re-activate this feature, remove the existing server from the LAN and reset the Eicon 1530.

To disable the DHCP server:

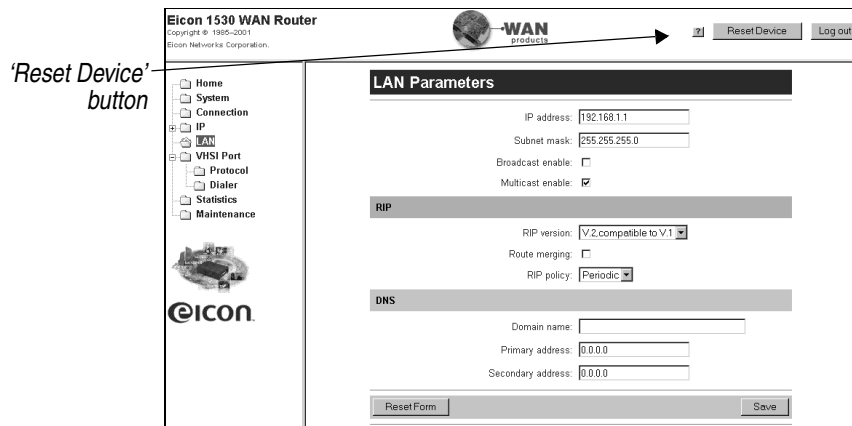
1. In the Link List, click the '+' next to 'IP', then click 'DHCP' from the submenu.
2. In the 'DHCP' page, clear the 'Enable DHCP' checkbox.
3. Click the 'Save' button.

What's Next?

See [Step 7: Reset the Device](#) on page 22.

Step 7: Reset the Device

For your settings to take effect, you must reset the device by clicking the 'Reset Device' button at the top of the browser window.



Notes:

- Normally you are returned to the welcome page after performing a reset. However, if the LAN IP address has been changed, you will lose contact with the Eicon 1530. If this is the case, you should receive an error message from your browser after about 45 seconds. To re-establish contact with the device, open the web configuration interface using the new IP address.
- If you changed the IP address of your computer in order to configure the Eicon 1530, you may need to return these settings to their original state.
- If you are using the Eicon 1530 as your DHCP server, you may need to restart your computer in order to acquire a new IP address from the device. If you are using Windows, you can do the following to acquire a new IP address without restarting:

Windows 95/98/Me: Click 'Start', 'Run', type 'winipcfg', and click 'Enter'. Click 'Renew All'.

Windows NT/2000/XP: Launch a command prompt, type 'ipconfig /release' and press Enter, then 'ipconfig /renew' and press Enter.

What's Next?

See [Step 8: Test WAN Access](#) on page 23.

Step 8: Test WAN Access

Once you have made the required changes, test that you have access to the remote device using your WAN application. You can also ping the remote device to which you are attempting to connect.

Troubleshooting

If you cannot access the WAN:

- Check your configuration settings (see [Step 4: Modify VHSI Settings](#) on page 17). Verify that your settings are consistent with those of your network provider.
- Verify that your TCP/IP settings are correct for your situation (DHCP client or static IP address) and that you have restarted your computer. If you cannot access the 'Log in' page again, follow the instructions and suggestions given in [Step 3: Log in to the Eicon 1530](#) on page 15.

What's Next?

- If you are using the Eicon 1530 over a LAN, see [Adjusting LAN Settings \(if required\)](#) on page 24 to verify if you must modify other LAN settings.
- To learn more about your Eicon 1530, see [Using your Eicon 1530](#) on page 28.

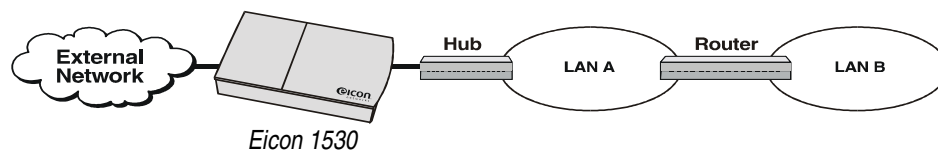
Adjusting LAN Settings (if required)

Depending on your setup, you may have to adjust some of the configuration settings on your computers or servers in order to communicate with the Eicon 1530. Due to the diversity of networking equipment and topologies, this section can only cover the most common setups. If your setup is more complex, contact your network administrator (or other support personnel) to help with the installation.

Once you make these changes, the computers on your network may need to be restarted in order to acquire the new settings.

- **If your LAN uses static addressing:** Set the 'Default Gateway' and 'DNS Server' settings of each computer to the address of the Eicon 1530. These settings are normally found in the TCP/IP settings for your operating system.
- **If your LAN has a DHCP server:** Configure your DHCP server to return the address of the Eicon 1530 as the 'Default Gateway' and 'DNS Server' to all clients.
- **If your LAN has a router:** Most likely, your router is configured as the default gateway for your computers. In this case, you will need to configure the routing table on your router to re-direct the appropriate traffic to the Eicon 1530, as well as add a route on the Eicon 1530 to direct appropriate traffic to the router.

Consider the following example:



Traffic from LAN A addressed to LAN B is forwarded by the router to LAN B.

Traffic from LAN B addressed to the external network needs to be forwarded by the router to the Eicon 1530. This requires you to configure a route on the router.

Traffic from the external network to LAN B needs to be forwarded to the router. This requires you to configure a route on the Eicon 1530. No route is needed for traffic to LAN A.

Changing TCP/IP Settings to DHCP

For most connection scenarios, your computer must have TCP/IP configured to act as a DHCP client. This allows your computer to dynamically acquire its IP address and other settings from the Eicon 1530.

Note: *If you do not want to use the Eicon 1530's DHCP feature, you must change the IP address of your computer to 192.168.1.2, or 192.168.1.3, etc., as the default IP address is 192.168.1.1.*

The following procedures describe how to set your TCP/IP settings for Windows 95, Windows 98, Windows NT 4.0, Windows 2000, and Windows XP. For other platforms, consult the documentation for your operating system.

- [TCP/IP Settings for Windows 95/98/Me](#) 25
- [TCP/IP Settings for Windows NT 4.0](#)..... 26
- [TCP/IP Settings for Windows 2000/XP](#) 26

TCP/IP Settings for Windows 95/98/Me

The following procedure describes how to verify and install TCP/IP on Windows 95, Windows 98, or Windows Me. Note that if you have more than one Ethernet adapter installed on your system, you must only change the settings for the adapter used by the Eicon 1530.

1. Click 'Start', 'Settings', 'Control Panel'.
2. Double-click the 'Network' icon. The 'Network' dialog box appears. By default, the 'Configuration' tab is displayed.
3. If 'TCP/IP' is not listed for your network adapter in the 'Components' list, you must add it, as described below.
 - Click 'Add'. The 'Select Network Component Type' dialog box appears.
 - Select 'Protocol', then click 'Add'. The 'Select Network Protocol' window appears.
 - In the 'Manufacturer' box, select 'Microsoft'.
 - In 'Network Protocols', select 'TCP/IP'.
 - Click 'OK'. Once installation is complete, you are returned to the Network window.
 - Do not click the 'OK' button yet; next you will verify your TCP/IP settings.
4. In the list of components, select 'TCP/IP' for your network card, then click 'Properties'. The 'TCP/IP Properties' dialog box appears.
5. Click the 'IP Address' tab and select 'Obtain an IP address automatically'. This defines your machine as a DHCP client.
6. Click the 'WINS Configuration' tab and select 'Use DHCP for WINS Resolution'.
7. Click the 'Gateway' tab and remove all existing gateways.
8. Click the 'DNS Configuration' tab and select 'Disable DNS.' This instructs your computer to obtain DNS server information via DHCP.
9. Click 'OK', then click 'OK' again.

Note: *You may be asked to insert your original Windows installation CD-ROM.*
10. Click 'Yes' when prompted to restart your system.

TCP/IP Settings for Windows NT 4.0

The following procedure describes how to install TCP/IP on Windows NT 4.0. Note that if you have more than one Ethernet adapter installed on your system, you must only change the settings for the adapter used by the Eicon 1530.

1. Click 'Start', 'Settings', 'Control Panel'.
2. Double-click the 'Network' icon. The Network dialog box appears.
3. Click the 'Protocols' tab.
4. If 'TCP/IP' is not listed, you must install it, as described below.
 - From the 'Protocols' tab, click 'Add'.
 - Select 'TCP/IP protocol' as your network protocol, then click 'OK'.
 - Click 'Yes' to use DHCP.
 - When prompted, insert the original Windows NT installation CD and enter **d:\i386** (where d: is the drive letter of your CD drive), and click 'Continue'.
 - Do not click the 'OK' button yet; next you will verify your TCP/IP settings.
5. Click the 'Protocols' tab.
6. Select 'TCP/IP protocol', then click 'Properties'.
7. Select 'Obtain an IP address from a DHCP server'.
8. Click the 'DNS' tab. Delete any DNS addresses are configured.
9. Click 'OK'.
10. Restart your computer if requested to do so.

TCP/IP Settings for Windows 2000/XP

Windows 2000/XP automatically created a network adapter profile (named 'Local Area Connection' by default) when the adapter was installed. Note that if you have more than one Ethernet adapter installed on your system, you must only change the settings for the adapter used by the Eicon 1530.

1. Click 'Start', 'Settings' then 'Network and Dial-up Connections' ('Network Connections' for Windows XP).
2. In the Network and Dial-up Connections (Network Connections for Windows XP), right-click the appropriate adapter entry and click 'Properties'. The properties window for this adapter is displayed.
3. Select 'Internet Protocol (TCP/IP)', then click 'Properties'.
4. The settings should be 'Obtain an IP address automatically' and 'Obtain DNS server automatically'.
5. Click 'OK', then 'OK' again, then click 'Close'.
6. Restart your computer if requested to do so.

Technical Support

To obtain technical support for Eicon Networks products, visit our web site at:

<http://www.eicon.com/support/>

For the latest information on the Eicon 1530, visit:

<http://www.eicon.com/wan1530/>

For customer service, contact your Eicon Networks supplier.

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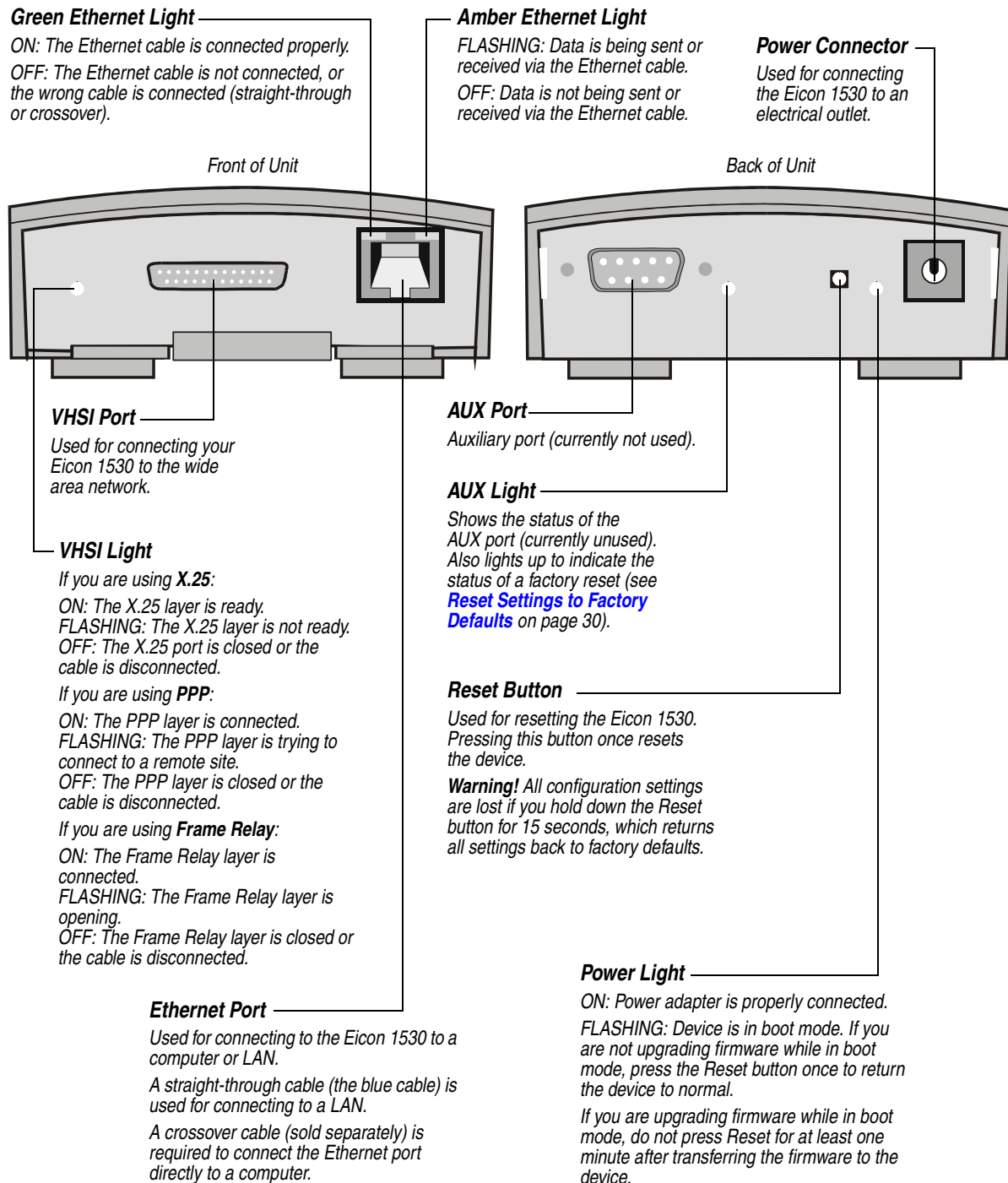
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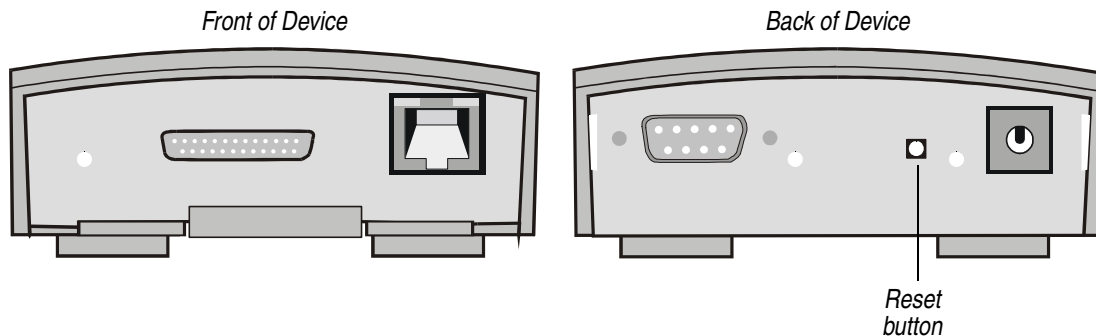
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Ports and Indicator Lights



Resetting the Device via the Reset Button

The Reset button for the Eicon 1530 is shown below.



Normal Reset

If you press the Reset button once quickly, you will do a 'normal' reset. This reboots the device, and your settings are left intact.

You can also do a normal reset using the 'Reset' button at the top of the browser window when you are using the web interface.

Reset Settings to Factory Defaults

Warning: Resetting to factory defaults erases all configuration settings.

To reset to factory defaults, hold down the 'Reset' button for at least 15 seconds. The AUX light will turn on, then will go off after 15 seconds, indicating the reset is complete.

Note: This procedure will return the default IP address of the Eicon 1530 to 192.168.1.1. If you changed the IP address of the Eicon 1530 from this default setting, you will need to use the default IP address 192.168.1.1 to access the configuration menu.

You can also reset to factory defaults using the Web-based configuration interface (see [Saving and Resetting Configuration Settings](#) on page 36) as well as the Reset Factory command (see [General Commands](#) on page 108 for more information).

Entering Boot Monitor Mode

If you hold down the reset button for five seconds and less than 15 seconds, you will enter Boot Monitor mode, which is used for troubleshooting purposes only. Press the 'Reset' button once more to return the device back to normal operation.

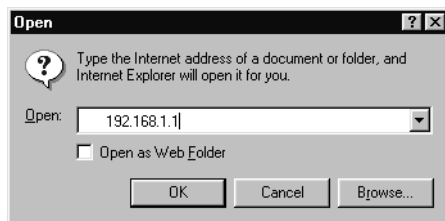
Accessing the Configuration Menu

The Eicon 1530 Configuration Pages allow you to manage the configuration and operation of the Eicon 1530. You can also view status information and perform maintenance tasks like updating the firmware.

Note: *Only one user can access the configuration pages at a time.*

Procedure

1. Launch your web browser.
2. Click 'File', 'Open', then enter the following IP address:
192.168.1.1



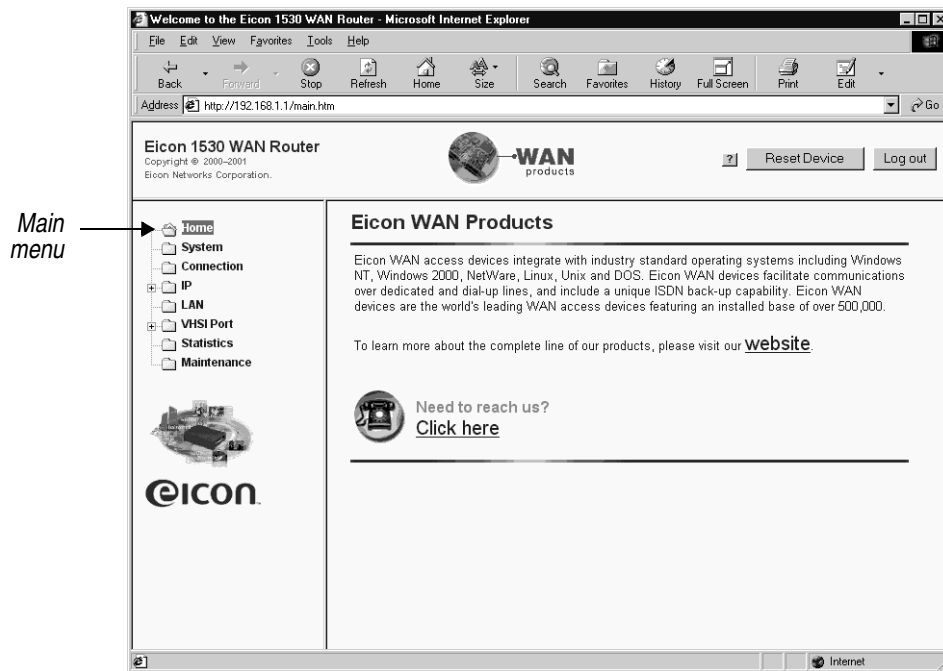
Click 'OK' when done.

3. The 'Log In' page appears.

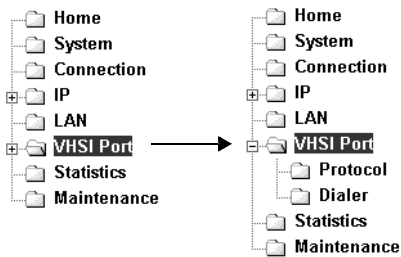


4. Enter the system password, if required, and click 'Log in'.
By default the Eicon 1530 has no password.

5. The main configuration menu appears. To access the different settings, click on the links in the main menu, at the left of the window.

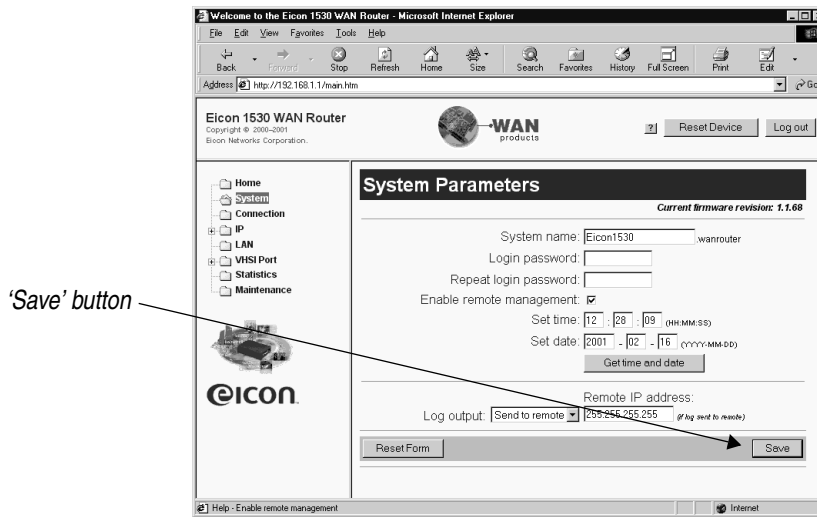


Some settings have subgroups, which are accessed by clicking the '+' next to the group.

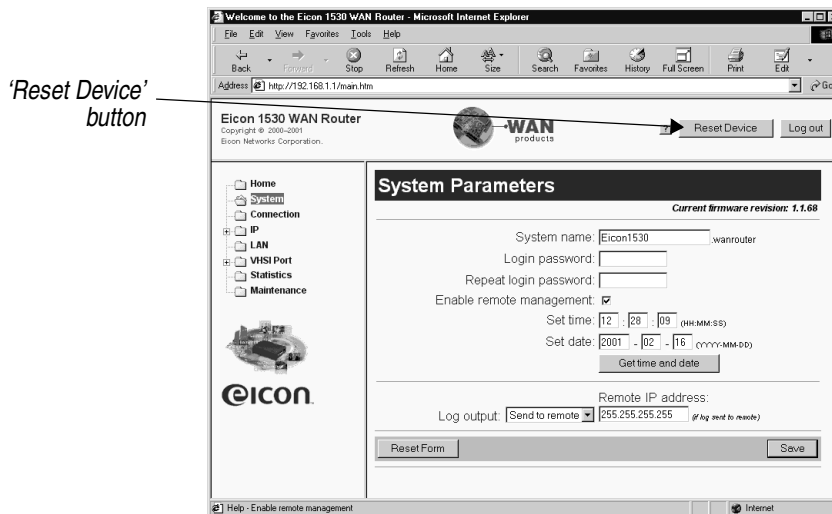


Saving configuration settings and resetting the device

Most pages in the configuration interface have a 'Save' button. When you click this button, your changes are saved to the Eicon 1530.

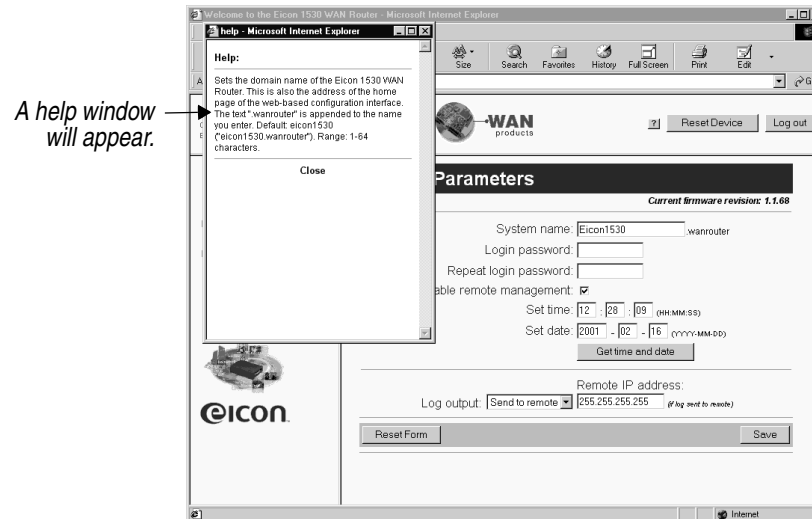
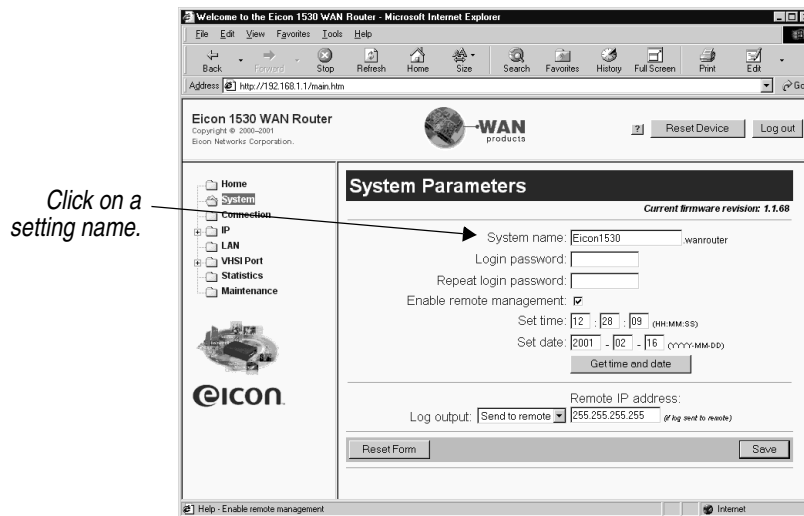


However, for the changes to take effect, you must reset the Eicon 1530. You can do this by clicking the 'Reset Device' button on the main menu, or you can press the reset button on the device itself (see [Resetting the Device via the Reset Button](#) on page 30 for more information).



Getting Help

Online help is available for all settings by clicking on a setting name.



Upgrading Firmware via a Web Browser

Eicon Networks posts the latest Eicon 1530 firmware on its web site. You can automatically update your Eicon 1530 to the latest version using the web configuration interface.

Note: *Configuration settings are normally preserved during firmware updates. However, if you wish to make a backup of your configuration before upgrading, see [Saving and Resetting Configuration Settings](#) on page 36.*

Procedure

1. Log in to the Eicon 1530 as described in [Accessing the Configuration Menu](#) on page 31.
2. From the main menu, click 'Maintenance'.
The maintenance menu appears with two options, 'Firmware' and 'Configuration'.

Menu	
Firmware <i>Backup and/or upgrade firmware</i>	Configuration <i>Backup and/or restore config file</i>

3. Click 'Firmware' to display the 'Firmware Maintenance' page.

Firmware Maintenance	
Backup firmware	
Save an image of the currently installed firmware to a file on your computer	
	<input type="button" value="Backup"/>
Upgrade firmware	
Load a new firmware image onto the Eicon 1530 WAN Router from your computer. (All configuration settings are preserved.) It is recommended that you <i>backup</i> your currently installed firmware <i>before</i> you upgrade it.	
<input type="text"/>	<input type="button" value="Browse..."/> <input type="button" value="Upgrade"/>
Be patient! After you click the Upgrade button, there will be a delay while the file is being transferred.	
<input type="button" value="Back to menu"/>	

4. To save a copy of the Eicon 1530's current firmware to disk, click 'Backup'. This is done in case you encounter problems installing or using the new firmware.

To upgrade the firmware, click the 'Browse' button, then select the new firmware file. When complete, the Eicon 1530 is automatically reset to activate the new firmware.

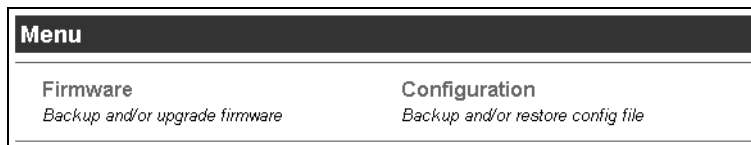
Saving and Resetting Configuration Settings

The web-based configuration interface makes it easy to save and restore configuration settings on the Eicon 1530. This is useful for backup purposes, or if you intend to maintain several different configurations. You can also reset all settings to factory defaults.

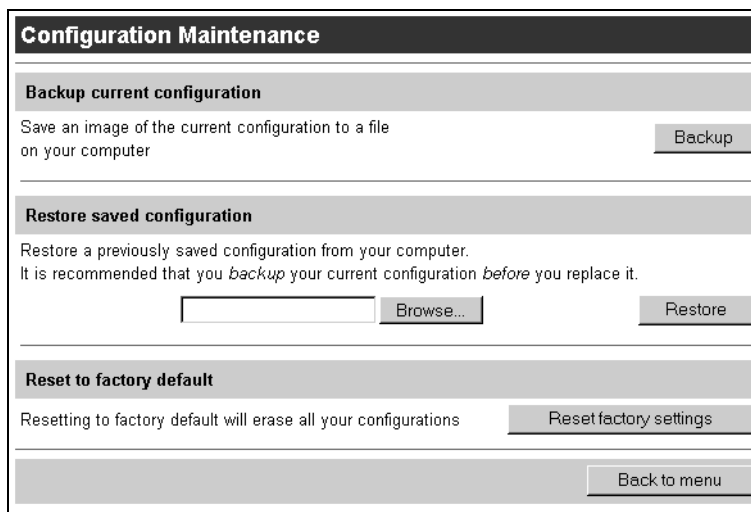
When you save the configuration settings, they are stored in a file on your computer.

Procedure

1. Log in to the Eicon 1530 as described in [Accessing the Configuration Menu](#) on page 31.
2. From the links at left, click 'Maintenance'.
The maintenance menu appears with two options, 'Firmware' and 'Configuration'.



3. Click 'Configuration' to display the 'Configuration Maintenance' page.



4. To save your configuration settings to disk, click 'Backup'.
To restore a previously-saved configuration, click 'Browse', select the file, then click 'Restore'. The backup file uses the extension .CFG.

To reset the Eicon 1530 to factory default settings, click 'Reset factory settings'. Resetting the Eicon 1530 to factory defaults will erase all your configuration settings, including the system password. Consider backing up your current configuration before you reset to factory defaults, just in case.

Note: If you changed the LAN IP address of the Eicon 1530 from its default setting of 192.168.1.1, you will lose contact with the web configuration interface after the reset is complete. This is because the reset will return the Eicon 1530 to its default of 192.168.1.1. To regain access to the Eicon 1530, open the URL <http://192.168.1.1>.

You can also reset the box to factory settings by holding down the device Reset button for 15 seconds. See [Resetting the Device via the Reset Button](#) on page 30 for more information.

Changing the VHSI Port Protocol

The Eicon 1530 uses profiles to make individual connections. However, the connection profiles depend on the protocol chosen for the VHSI port. When you change the VHSI port protocol, all profiles associated with that protocol are erased. Therefore, it is very important to select the VHSI port protocol first, before creating or modifying connection profiles.

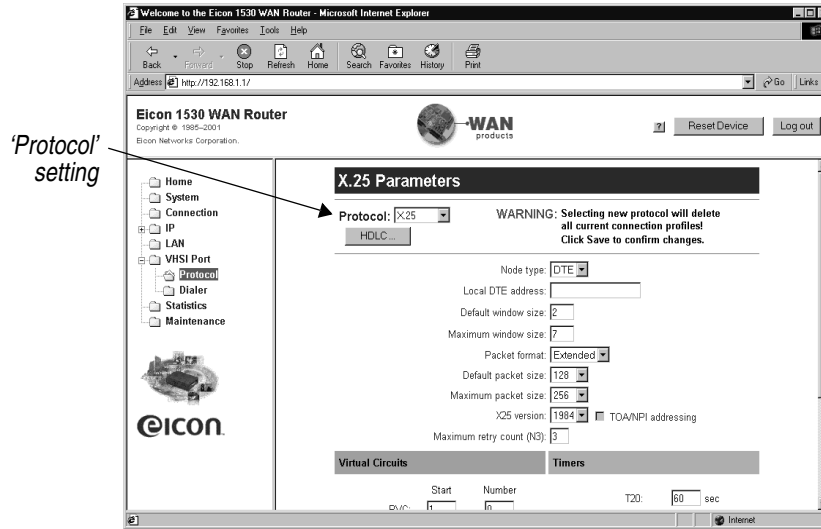
If you sometimes need to use different VHSI port protocols, use the configuration backup and restore feature as described in [Saving and Resetting Configuration Settings](#) on page 36.

Procedure

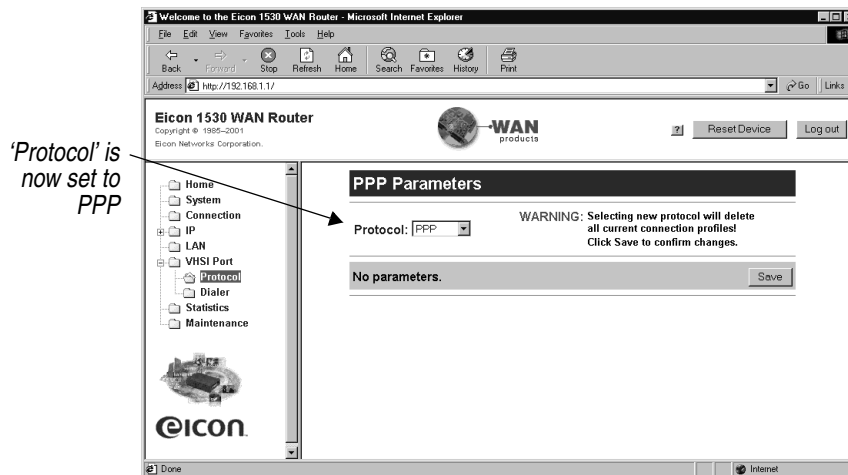
1. Log in to the Eicon 1530 as described in [Accessing the Configuration Menu](#) on page 31.
2. From the main menu, click 'Protocol'.

Note: The 'Protocol' link is part of the VHSI Port group of protocols. If you do not see 'Protocol', click on the small '+' next to 'VHSI Port' to expand the VHSI Port subgroup.

3. The 'Protocol' page appears. By default, the protocol is set to X.25.



- To change the protocol setting, select a new protocol from the drop-down menu. In the following example, the protocol was changed from 'X.25' to 'PPP'.



Note: The 'Protocol' page may or may not contain general protocol settings, depending on the protocol chosen. For example, when the protocol is set to X.25, the protocol page lists several parameters that can be modified. But when the protocol is set to PPP, no parameters are available.

- Click the 'Save' button to save this setting. You may have to scroll down in order to locate the button.

If you change your mind and do not want to save your changes, click on any other link (such as the 'Home' link). In doing so, your choice for protocol will be ignored.

Note: Once you click 'Save', your connection profile settings are erased. To save your configuration information before changing the protocol, see [Saving and Resetting Configuration Settings](#) on page 36.

- For your settings to take effect, click the 'Reset' button at the top of the window. However, you may wish to modify other VHSI settings first, as well as create connection profiles (see [Creating and Editing Profiles](#) on page 39 for more information).

Creating and Editing Profiles

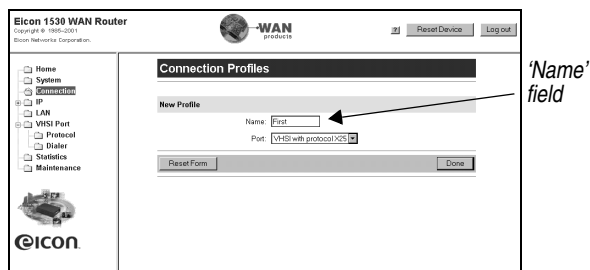
Settings for particular connections are contained in profiles on the Eicon 1530. However, when you change protocols for the VHSI interface, all profile information is lost. To avoid having to re-enter configuration information, choose the protocol first, as described in [Changing the VHSI Port Protocol](#) on page 37.

Once your protocol is configured properly, you need to create connection profiles. The following procedure illustrates how profiles are created and modified when the protocol is set to X.25. The procedure is the same for other protocols.

Certain protocols allow for more than one connection profile. For example, if you have set the VHSI interface to the 'X.25' protocol, you have the option of creating up to eight profiles. For 'PPP' however, you can only create one profile.

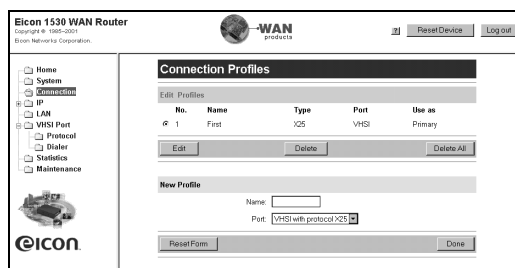
Procedure

1. Log in to the Eicon 1530 as described in [Accessing the Configuration Menu](#) on page 31.
2. From the Link List, click the 'Connection' link. The 'Connection Profiles' page appears.
3. To add a profile, enter the name in the 'Name' field, then click the 'Done' button.



Note: With X.25 or Frame Relay, you can create up to eight profiles. For PPP, you can create only one profile.

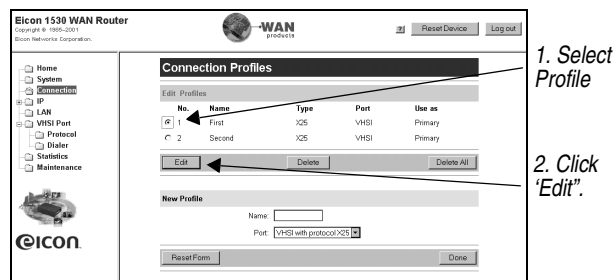
4. The web page for your new profile will be displayed.



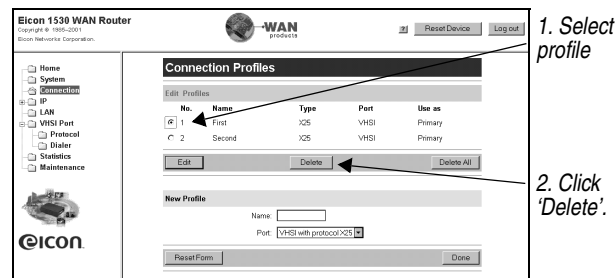
5. To edit the profile, make sure it is selected and click 'Edit'.

6. Make the required changes to the profile. Be sure to scroll down and inspect all parameters. In particular:
 - If you are using X.25, make sure to enter the remote DTE address and remote IP address.
 - If you are using Frame Relay, make sure the local DLCI number is the same as the remote DLCI.
 - If you are using PPP, make sure to enter the IP information at the bottom of the page.
7. Click the 'Save' button when finished making your changes. If you do not click 'Save', your changes will be ignored. However, the profile you added will remain with the default settings.
8. To create another profile, enter the new name in the 'Name' field under 'New Profile' at the bottom of the page, then click 'Done'.

When you have more than one profile, selecting the associated radio button allows you to select which profile to edit.



To delete a profile, select the profile and click 'Delete'.



To delete all profiles, click the 'Delete All' button.

9. For your settings to take effect, click the 'Reset' button at the top of the window.

Security

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Overview

Connecting your computers to an external network creates a wide range of benefits, but also exposes your computers to certain risks. To safeguard your data and systems, the Eicon 1530 provides a comprehensive range of security features. This section explains how to use and configure each feature for optimal protection of your systems.

Security Features Summary

This table lists all security features offered by the Eicon 1530, and their default settings.

Feature	Default	Description
System password	None	Restricts access to the Eicon 1530 configuration interfaces.
Automatic log out	Active	Automatically terminates idle configuration sessions.
Network address translation (NAT)	Disabled	NAT hides the addresses of the computers on the internal Ethernet LAN from the external network.
Remote management	Active	Permits remote systems to log on to the Eicon 1530 web configuration interface.
Call authentication (PPP only)	Available	Lets you authenticate an incoming connection, or provide authentication when making a connection.
Manual dialing	Disabled	Lets you manually control when the connection is established.
Custom security using IP filters	None	Allows you to filter specific IP datagrams for security reasons.
Command Line Interface	Available	The Command Line Interface allows you to change settings via text commands.

The following table lists the security features that can be applied to restrict access to the Eicon 1530 configuration interfaces.

Source system	Connection	Security features that apply
Remote computer	external network	<ul style="list-style-type: none">• System password• Automatic log out• Remote Management• Call authentication• Custom security using IP filters
Local computer	Ethernet	<ul style="list-style-type: none">• System password• Automatic log out• Custom security using IP filter

System Password

The Eicon 1530 provides a system password that restricts access to the web-based configuration interface and the CLI. This ensures that configuration changes can only be made by authorized personnel.

By default, no password is defined.

Setting a System Password

1. From the Link List, click 'System'.
2. Enter the new system password in the 'Login Password' and 'Repeat Login Password' fields.

The screenshot shows the 'Welcome to the Eicon 1530 WAN Router' page in Microsoft Internet Explorer. The address bar shows 'http://192.168.1.1/main.htm'. The left navigation menu includes links for Home, System, Connection, IP, LAN, VHSI Port, Statistics, and Maintenance. The 'System' link is highlighted. The main content area is titled 'System Parameters' and shows the current firmware revision as 1.1.68. The 'System name' field is pre-filled with 'Eicon1530.wanrouter'. The 'Login password' and 'Repeat login password' fields are empty. The 'Enable remote management' checkbox is checked. The 'Set time' field shows '12:28:09' (HH:MM:SS) and the 'Set date' field shows '2001-02-16' (YYYY-MM-DD). The 'Log output' dropdown is set to 'Send to remote' and the 'Remote IP address' field is pre-filled with '255.255.255.255'. The 'Reset Form' and 'Save' buttons are at the bottom.

3. Click 'Save' then 'Reset'.

Forgot your Password?

If you have forgotten your password, the only way gain access to the configuration pages is to reset the Eicon 1530 to its factory defaults. See [Resetting the Device via the Reset Button](#) on page 30 for more information.

Note: Resetting the device also returns all configuration settings, including username and password information, to factory defaults.

Automatic Log Out

The Eicon 1530 applies an automatic timeout to configuration sessions. When a configuration session is idle for more than the timeout value, the Eicon 1530 automatically logs the user out. This reduces the risk of unauthorized persons taking advantage of a logged-in computer that has been left unattended.

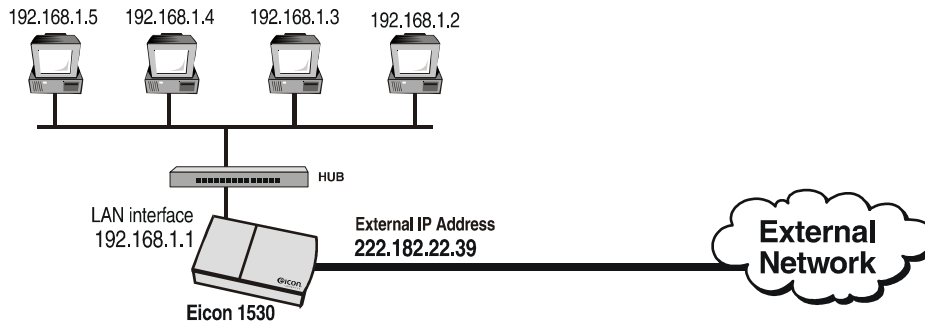
The timeout values, which are not configurable, are as follows:

- Web interface: 30 minutes.
- Telnet session: 2 minutes.

Note: *Changes that have not been saved are lost when the configuration session is terminated.*

Network Address Translation (NAT)

The Eicon 1530 uses network address translation (NAT) to 'hide' the local LAN from all external resources. The benefits of this are the ability for all connected computers to access the external network using one user account, defined on the device itself. For example, when communicating with the Internet, the four computers in the following diagram share the dynamically assigned address '222.182.22.39'.



Notes

- NAT operates transparently, translating internal addresses to a single external one for all data traffic. NAT has no effect on total throughput.
- Most applications will work with NAT. However, some programs may not work well or at all with NAT enabled.
- NAT is disabled by default.

Security benefits

An additional benefit of NAT is increased network security. Like a firewall, NAT restricts access to the computers that reside on the local LAN. By default, no computer on the internal LAN is visible to the external. Computers on the internal network cannot act as FTP or web servers, nor can they share their drives using Windows Network Neighborhood. These security features can be weakened if you use NAT static mappings (see [NAT static mappings](#) on the following page).

NAT static mappings

With NAT enabled, computers outside of the internal LAN do not have access (are not visible) to any computers on the internal LAN. If you need a computer on the internal LAN to be visible to the external network, the Eicon 1530 provides a solution through NAT static mappings.

NAT static mappings allow you to permit specific computers on the internal LAN to receive certain incoming network traffic. For example, you could designate a computer to receive all incoming HTTP traffic, allowing it to function as a web server. However, the actual IP address of this computer is still hidden by NAT. Therefore, remote users must specify the address of the Eicon 1530 to gain access to the web server.

When you create a NAT static mapping, the Eicon 1530 routes *all* traffic for the protocol you specify to the designated computer. This includes traffic normally handled by the Eicon 1530 itself. This leads to the following restrictions:

- Remote access to the configuration interfaces on the Eicon 1530 via the external network can be disrupted. For example, if you designate a computer to receive HTTP traffic, remote access to the web configuration interface will be disrupted. However, local access via Ethernet will still be possible.
- Only *one* computer on the internal LAN can be designated to receive the traffic for a *specific* protocol. This means, for example, you cannot create multiple web servers; all web traffic must be sent to one computer on your LAN.

Creating Static NAT Mappings

1. From the main menu, click on the '+' next to the 'IP' link to expand the IP group. Then click 'NAT static mappings'.

NAT Static Mappings			
Default NAT server: 0.0.0.0			
Edit NAT static mappings			
Map	Protocol	Server port	Server IP address
1	None	0	0.0.0.0
2	None	0	0.0.0.0
3	None	0	0.0.0.0
4	None	0	0.0.0.0
5	None	0	0.0.0.0
6	None	0	0.0.0.0
7	None	0	0.0.0.0
8	None	0	0.0.0.0
9	None	0	0.0.0.0
10	None	0	0.0.0.0
11	None	0	0.0.0.0
12	None	0	0.0.0.0

2. For each server that you want to define, specify the following parameters:
 - 'Protocol': The protocol that remote computers will use to access the server.
 - 'Server port': The port number that the protocol will use on the server.
 - 'Server address': The IP address of the computer that will act as the server. The server address must be on the same LAN as the Eicon 1530 (or must be reachable via the LAN).
3. Click 'Save' then 'Reset'.

Default NAT Server

When the Eicon 1530 receives incoming datagrams containing protocols it is not supposed to accept, the datagrams are discarded. For example, if an incoming datagram contains an FTP request, and no FTP server has been defined using a static mapping, the datagram is discarded.

In some cases, you may want to forward all datagrams containing unspecified protocols to a computer on your LAN. The Eicon 1530 calls this computer the 'default NAT server'.

To define a default NAT server, enter the IP address of the device that should receive these datagrams into the 'Default NAT server' field on the IP Parameters panel.

NAT Static Mappings

Default NAT server:

'Default NAT Server' field

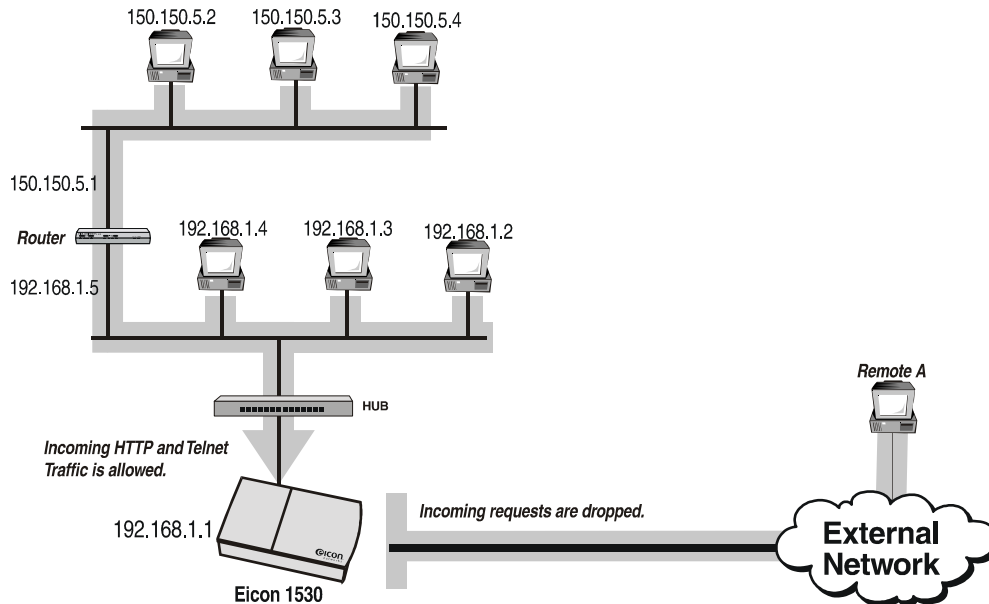
Edit NAT static mappings

Map	Protocol	Server port	Server IP address
1	None	0	0.0.0.0
2	None	0	0.0.0.0
3	None	0	0.0.0.0
4	None	0	0.0.0.0
5	None	0	0.0.0.0
6	None	0	0.0.0.0
7	None	0	0.0.0.0
8	None	0	0.0.0.0
9	None	0	0.0.0.0
10	None	0	0.0.0.0
11	None	0	0.0.0.0
12	None	0	0.0.0.0

Note: The Eicon 1530 handles traffic with the following protocols: HTTP, Telnet, TFTP, ECHO (UDP port 7), and SNMP. Only traffic that does not contain these protocols will be forwarded to the default NAT server. To forward the aforementioned protocols you must define a NAT static mapping for each one.

Remote Management

By default, the Eicon 1530 allows remote devices to access its configuration interfaces via the external network. This feature can be disabled; however, this does not affect traffic on the local LAN created by the Eicon 1530. If the local LAN is connected to other networks, these computers will continue to have access to the Eicon 1530, even if remote management is disabled. Consider the following topology:



In the above example, all computers on the two LANs have access to the Eicon 1530 configuration interfaces. However, remote computer A is blocked as it must go through the external network to access the Eicon 1530.

Note: Remote security is implemented using IP filtering. In the web interface, expand the 'IP' section and click 'Filters'.

Disabling Remote Management

To disable remote management:

1. From the Link List, click 'System'.

Welcome to the Eicon 1530 WAN Router - Microsoft Internet Explorer

Address: http://192.168.1.1/main.htm

Eicon 1530 WAN Router
Copyright © 2000-2001
Eicon Networks Corporation.

System Parameters
Current firmware revision: 1.1.68

System name: Eicon1530.wanrouter

Login password:

Repeat login password:

Enable remote management: ☒

Set time: [12] : [28] : [09] (HH:MM:SS)

Set date: [2001] - [02] - [16] (YYYY-MM-DD)

Get time and date

Remote IP address:

Log output: [Send to remote] [255.255.255.255] (# log sent to master)

Reset Form Save

Help - Enable remote management

2. Clear the 'Enable remote management' check box.

Welcome to the Eicon 1530 WAN Router - Microsoft Internet Explorer

Address: http://192.168.1.1/main.htm

Eicon 1530 WAN Router
Copyright © 2000-2001
Eicon Networks Corporation.

System Parameters
Current firmware revision: 1.1.68

System name: Eicon1530.wanrouter

Login password:

Repeat login password:

Enable remote management: ☐

Set time: [12] : [28] : [09] (HH:MM:SS)

Set date: [2001] - [02] - [16] (YYYY-MM-DD)

Get time and date

Remote IP address:

Log output: [Send to remote] [255.255.255.255] (# log sent to master)

Reset Form Save

Help - Enable remote management

'Enable remote management' option

3. Click 'Save' then 'Reset'.

Defining a Password

If remote management is enabled, it is strongly suggested that you define a login password.

This parameter is available on the same page as the remote management option.

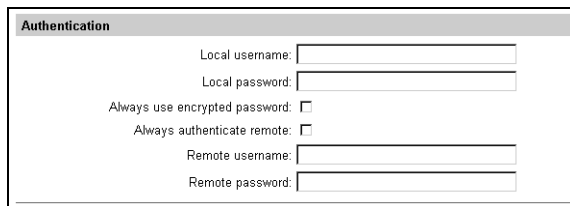
Authentication (PPP only)

Authentication works through the exchange of usernames and passwords. This process can be one-way (either the caller or callee gets validated) or two-way (both sides validate each other). Generally, authentication is one-way, with the incoming connection being validated. For example, when the Eicon 1530 connects to a device on the external network, the Eicon 1530 is authenticated by the remote device, i.e., the Eicon 1530 must supply a username and password to log on.

To successfully use authentication, it is important that both devices are configured to support the same authentication options.

Setting up Call Authentication

1. From the Link List, click 'Connection'.
2. Scroll down to the 'Authentication' section of the page.



The screenshot shows a web form titled 'Authentication'. It contains the following fields and options:

- Local username: [text input]
- Local password: [text input]
- Always use encrypted password: ☐
- Always authenticate remote: ☐
- Remote username: [text input]
- Remote password: [text input]

Note: This section will only appear if the protocol is set to PPP and you have created a profile.

3. Specify the 'Local username' and 'Local password'. These values will be sent to the remote site during the authentication process.

Note: Usernames and passwords are case-sensitive.

4. If passwords must be encrypted, enable the 'Always use encrypted password' option.
5. If required, enable the 'Always authenticate remote' option, then enter the 'Remote username' and 'Remote password'. The remote device must supply its own username and password in order for the connection to be completed.
6. Click 'Save', then 'Reset'.

Manual Dialing

The Manual Dialing feature lets you manually control when the connection is to be established.

Enabling Manual Dialing

1. From the Link List, click 'Connection'.
2. Scroll down to the 'IP' section of the page.

'Manual Dialing' option →

IP	
NAT enable:	<input type="checkbox"/>
Multicast enable:	<input type="checkbox"/>
Manual dialing:	<input type="checkbox"/>
IP address:	<input type="text" value="0.0.0.0"/>
Subnet mask:	<input type="text" value="0.0.0.0"/>
Remote IP address:	<input type="text" value="0.0.0.0"/>

3. Check the 'Manual Dialing' option.
4. Click 'Save', then 'Reset'.

Custom Security Features using IP Filters

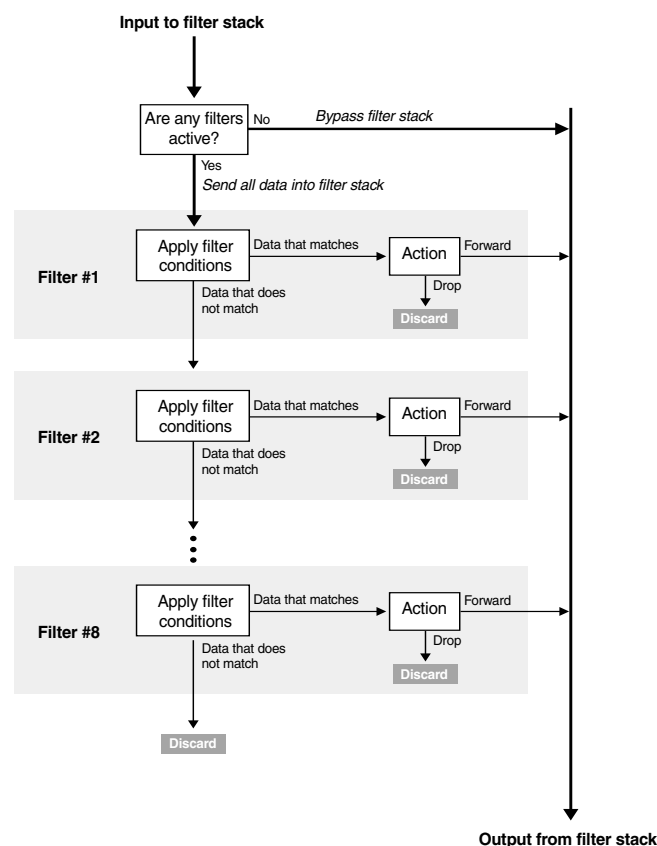
By using IP filters you can create your own custom security solutions. For example, you can limit local access to the Eicon 1530 for specific computers, accept incoming traffic only from certain remote users or networks, or drop incoming or outgoing nuisance traffic.

- [How Filtering Works](#)..... 53
- [Defining a New Filter](#) 54
- [‘Edit Filters’ Page Options](#) 56
- [Example: Dropping incoming traffic from a specific network](#) 59
- [Example: Allowing incoming traffic only from a specific network](#) 60

How Filtering Works

Each profile you define for a particular connection has its own set of filters (called the ‘filter stack’). All data packets, incoming and outgoing, pass through the filter stack of the profile being used for a particular connection. A filter stack can have up to 8 filters, allowing for sophisticated results.

Data cascades through the filter stack as shown in the following diagram. If a packet matches one of the filters in the stack, the filter action is performed.



Note: All incoming and outgoing data passes through the filter stack. Once any filter is activated, data transfer will be affected.

Important Notes on Filters

- Profile information is not retained when the protocol (PPP or X.25) is changed. Since filters apply to individual profiles, filter information is also lost when the protocol is changed. Be sure that you have set up the Eicon 1530 with the proper protocol, and that you have created all the necessary profiles, before creating filters.
- If you create a new profile, then wish to add filters for the profile, **you must first reset the device**. Click the 'Reset Device' button at the top of the browser window. You will not be able to create filters for a new profile until the device is reset.
- Unlike other configurations settings, you do not have to reset the Eicon 1530 to make filters operational. Once you define and enable the filter, then press 'Save', as described in the section [Defining a New Filter](#) (below), the filter becomes active. This means you must take special care in creating filters, as you could filter out your own access to the box accidentally.

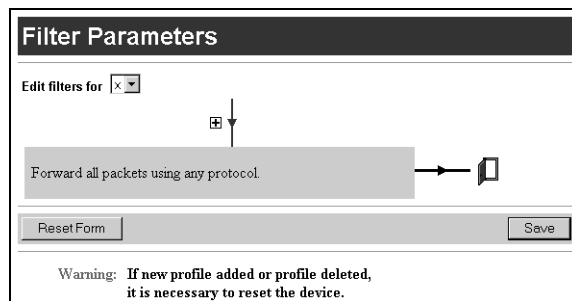
Defining a New Filter

Filters become active immediately after they are defined, saved, and enabled.

1. Start the web configuration interface and log in.

Note: If you have created a new profile since the last time the device was reset, reset the device now by clicking 'Reset Device' at the top of the browser window. You must have at least one profile defined before you can create a filter.

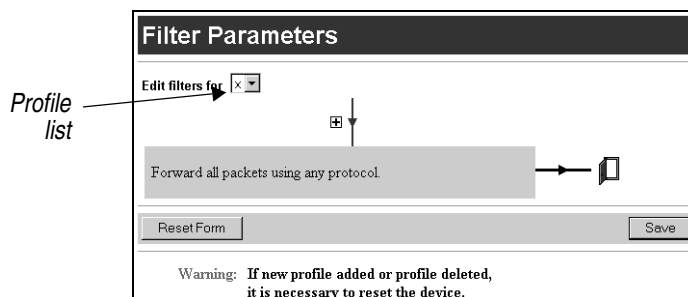
2. Click the '+' next to 'IP' in the Link List to expand the IP tree.
3. Click 'Filters' to display the 'Filter Parameters' page.



The screenshot shows the 'Filter Parameters' web page. At the top is a dark header with the title 'Filter Parameters'. Below the header is a section 'Edit filters for' with a dropdown menu showing 'x'. Underneath is a diagram of a filter rule: a box containing the text 'Forward all packets using any protocol.' with an arrow pointing to a small icon of a document with a checkmark. At the bottom of the form are two buttons: 'Reset Form' and 'Save'. A warning message at the very bottom reads: 'Warning: If new profile added or profile deleted, it is necessary to reset the device.'

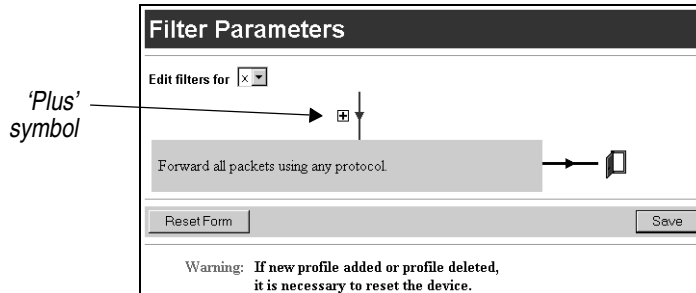
As shown in the above screenshot, the Eicon 1530 assigns a default filter automatically. This filter forwards all packets using any protocol, essentially letting all data pass through unfiltered.

4. If you have more than one profile available, select a profile from the drop-down menu (next to 'Edit filters for').



This screenshot is similar to the previous one but includes an annotation. An arrow points from the text 'Profile list' to the dropdown menu in the 'Edit filters for' section. The rest of the interface, including the filter rule diagram, 'Reset Form' and 'Save' buttons, and the warning message, is identical to the previous screenshot.

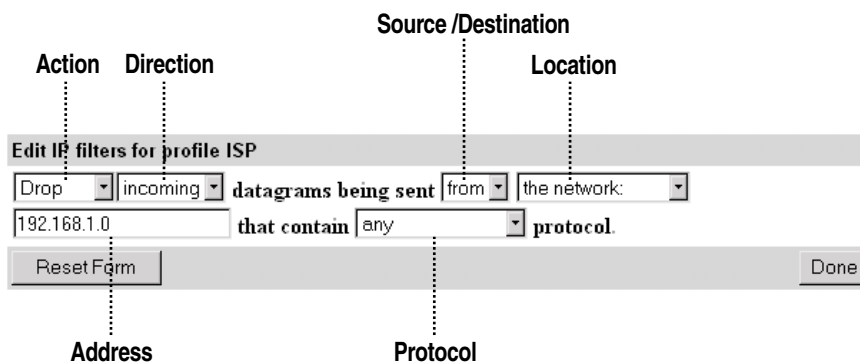
- To insert a new filter, click the '+' symbol.



- The 'Edit Filters' page appear.

- Define the settings for the filter using the drop-down menus and click 'Done'.

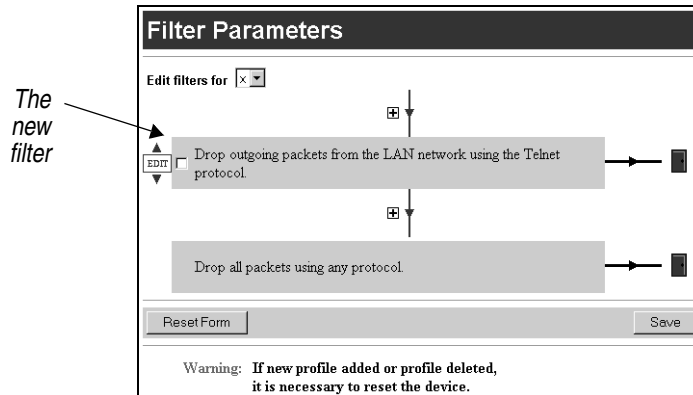
The following diagram shows a quick description of what each field means. For more details on the available options, see ['Edit Filters' Page Options](#) on page 56.



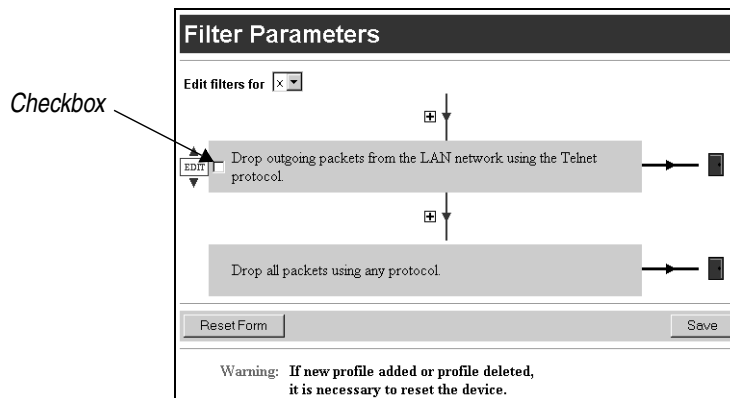
- When finished, click the 'Save' button.

Note: Two other options, the 'Select the operation...' menu and the 'Do it!' button, are located at the bottom of the 'Edit Filters' page. These options allow you to delete filters, or copy filters from one profile or another, and are not used for defining a filter.

9. Once you click ‘Save’, you are returned to the main filter page. The new filter you just defined is shown in the list. However, the checkbox to the left of the filter definition is empty, indicating that the filter is not enabled.



10. Enable the filter by clicking the box that appears to the right of the ‘Edit’ button.



11. Click ‘Save’. This makes the filter operational.

Note: Unlike other configurations settings, you do not have to reset the Eicon 1530 to make filters operational.

‘Edit Filters’ Page Options

Action

- ‘Drop’: Discard data that matches the filter definition.
- ‘Forward’: Send data that matches the filter definition to the filter output.
- ‘Forward if connected’: Send data that matches the filter definition to the filter output, if a connection is open.

Direction

- ‘incoming’: Data being received by the Eicon 1530 originating from the external network.
- ‘outgoing’: Data being sent by the Eicon 1530 to the external network.
- ‘all’: Both incoming and outgoing.

Source / Destination

- ‘from’: Examine the source IP address of the datagram.
- ‘to’: Examine the destination IP address of the datagram.

Location

- ‘the Ethernet LAN’: Sets the filter to match datagrams with network addresses that are the same as that of the Eicon 1530. By default, this is 192.168.1.0. A mask of 255.255.255.0 is used to extract the network address.
- ‘the network’: Sets the filter to match datagrams with network addresses that are the same as that the one you specify. Choosing this option requires that you supply the IP address of a class C network in the next box. The filter uses a mask of 255.255.255.0 to extract the network address (class C network mask).
- ‘host’: Sets the filter to match datagrams with IP addresses that are the same as the one you specify. Choosing this option requires that you supply the IP address of the host computer in the next box. The filter uses a mask of 255.255.255.255.
- ‘anywhere’: Sets the filter to ignore the source and destination address in the datagram.

Address

- ‘Address’: Only applies if you select *the network* or *the host* for location.

Protocol

IP datagrams can carry a wide variety of protocol traffic. The Eicon 1530 lets you filter many of the most popular protocols. The following descriptions explain some of the options that are available.

- ‘any’: Applies the filter to any datagram.
- ‘any well known’: Applies the filter to any protocol using TCP or UDP ports in the range 0 to 1023. See RFC 1700 for the complete list of protocols.
- ‘UNIX’: Applies the filter to any protocol using TCP or UDP ports in the range 512 to 1023. See RFC 1700 for the complete list of protocols.
- ‘TCP’: Many protocols (such as HTTP, FTP, Telnet, News) make use of TCP. If you filter all TCP traffic you will prevent the use of these protocols. Note that access to the web configuration interface occurs via HTTP and access to the command line interface (CLI) occurs via Telnet.
- ‘UDP’: Many protocols (such as SNMP, Time, TFTP, BOOTP) make use of UDP. If you filter all UDP traffic, you will prevent the use of these protocols.
- ‘FTP’: Applies the filter to all datagrams containing the file transfer protocol.
- ‘Web (HTTP)’: If you filter all HTTP traffic, you may not be able to reach the web configuration interface. Filtering outgoing HTTP traffic can be used to prevent users from browsing on the Internet.
- ‘Mail (SMTP)’: Applies the filter to all datagrams containing the mail (SMTP) protocol.
- ‘Mail (POP3)’: Applies the filter to all datagrams containing the mail (POP3) protocol.
- ‘Telnet’: If you filter all Telnet traffic, you will not be able to reach the command line interface (CLI).

- ‘TFTP’: The Eicon 1530 can function as a TFTP server to support uploading and downloading of configuration files. If you filter TFTP traffic, you will not be able to use this feature.
- ‘DNS’: Domain name system. Filtering DNS datagrams can cause disruptions in the ability to access remote sites.

The following options are also available: NFS/RPC, News, Time (NTP), BOOTP, SNMP, ICMP, Ping (ICMP), Ping Reply, ICMP Redir. For a description of these protocols, consult the appropriate RFC at the site <http://www.faqs.org/>.

Warning: Be Careful when Creating Filters

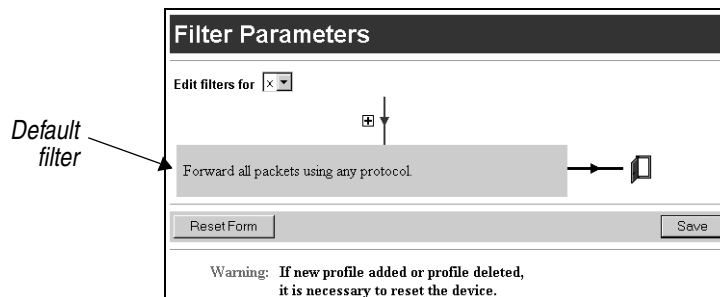
The ability to create filters is a very powerful tool. However, it is quite easy to define a filter that would essentially bar all incoming and outgoing data, including access to the Eicon 1530’s web or command line interface to change settings.

Please read [Default Filters](#) on page 58 before experimenting with filters.

If you find you have accidentally filtered yourself out of access to the Eicon 1530, you must reset the box to factory defaults by holding down the reset button for 15 seconds. However, you will lose all configuration information. As a precaution, back up your configuration before using filters.

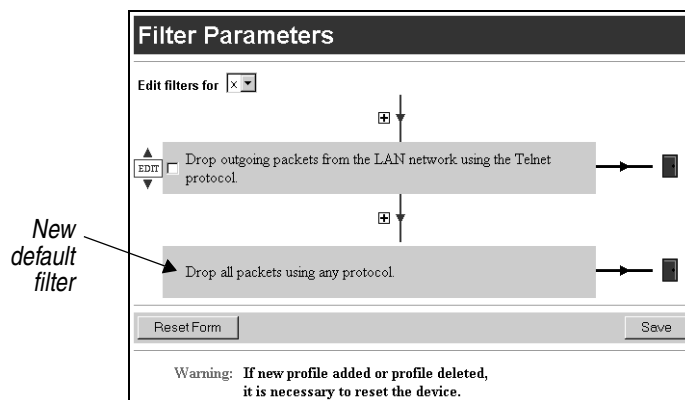
Default Filters

When a profile has no filters defined, a default filter is automatically supplied by the Eicon 1530, as shown below.



The default filter forwards all packets from anywhere. Essentially, all traffic is allowed through unimpeded. The default filter is always the last filter in the stack and cannot be edited.

However, the moment you create one filter, a new default is used that drops **all** traffic, as shown below.



This situation will usually require that you create at least one filter before the last filter. The new filter would forward legitimate traffic; all other traffic would be dropped by the last filter.

For example, if you wanted to bar all incoming and outgoing web traffic, but allow all other traffic, the filter stack would resemble the following:

1. Drop all packets from anywhere using the web protocol.
2. Forward all packets from anywhere using any protocol.
3. Drop all packets using any protocol (default last filter).

When a packet goes through the filter stack, the Eicon 1530 would first check if the packet is using the web protocol. If so, the packet is dropped. If not, the next filter is applied, which essentially forwards anything. The third filter is never reached, because the second filter catches all other traffic.

This type of filter stack is called an ‘anything but’ stack, as it lets all traffic through with specific exceptions. The opposite of this is a ‘nothing but’ stack, which allows packets from specific networks or protocols, but drops everything else. In this case, the second filter (‘Forward all packets...’) is not necessary. However, this type of stack is much more restrictive.

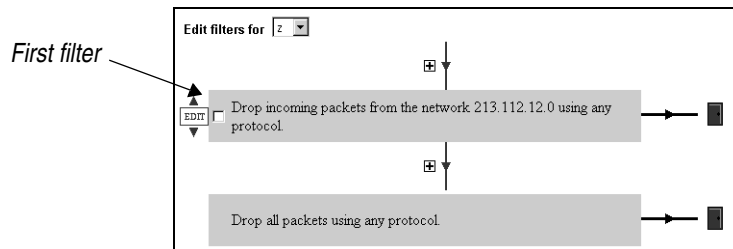
See [Example: Dropping incoming traffic from a specific network](#) and [Example: Allowing incoming traffic only from a specific network](#) on page 60 for more examples.

Example: Dropping incoming traffic from a specific network

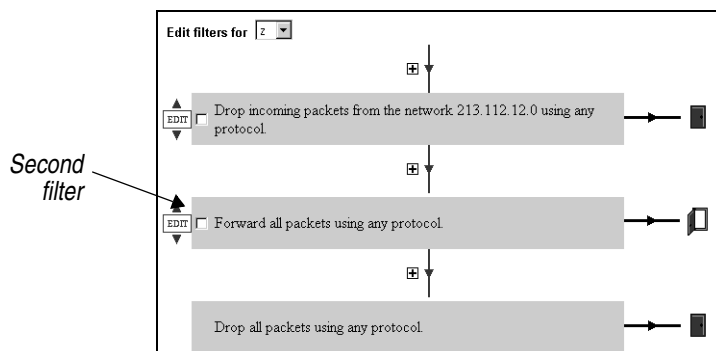
This example defines a filter to make sure that no traffic is accepted from a specific network. Assume the network has the IP address 213.112.12.0.

Edit IP filters for profile ISP					
Drop	incoming	datagrams being sent	from	the network:	
213.112.12.0		that contain	any	protocol.	

After creating the first filter, the filter page should look like this:



Since the Eicon 1530 automatically changed the last filter to one that drops **all** traffic, you must create a second filter (before the last one) that allows all other traffic through, as shown below. Without the second filter, all traffic would essentially be barred.



Example: Allowing incoming traffic only from a specific network

This example shows how to allow the Eicon 1530 to only accept **incoming** data from a specific network (112.111.212.0). Incoming data from all other networks is dropped. However, outgoing traffic is not affected. This requires defining two filters.

- Define the first filter to forward only incoming traffic from 112.111.212.0, as shown below.



- Define the second filter to forward all outgoing traffic. The filter should state 'Forward outgoing datagrams being sent from anywhere that contain any protocol,' as shown below.



The third and last filter (the default filter) will drop all traffic. Incoming data that does not originate from 112.111.212.0 will pass through the first two filters and will be dropped by the last filter. All outgoing data will pass through the first filter but will be caught by the second.

Web Interface Settings Glossary

This section lists all settings available through the web interface, along with explanations as to what each setting means. This information can also be found by clicking on the setting name while working within the web interface.

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Routes Menu (IP Tree)	73
Filters Menu (IP Tree)	74
NAT Mapping Menu (IP Tree)	75
Time Client Menu (IP Tree)	76
SNMP Menu (IP Tree)	77
DHCP Menu (IP Tree)	78
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Protocol Menu (VHSI Tree) (when protocol is set to X.25)	86
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Dialer Menu (VHSI Tree)	98

System Menu

System Name

Sets the domain name of the Eicon 1530. This is also the address of the home page of the web-based configuration interface. The text '.wanrouter' is appended to the name you enter.

Range: 1-64 characters, no spaces. Default: eicon1530 ('eicon1530.wanrouter').

Login Password

Defines the password that users need to specify when logging on. The password is case-sensitive, which means 'PASS' and 'pass' are not the same.

Range: 0-11 characters, no spaces. Default: none (no password required to log in).

Repeat Login Password

For verification, repeat the password you entered in the 'Login Password' field. The password will only be changed if both fields match.

Enable Remote Management

When enabled, allows remote computers to connect to the Eicon 1530 and access its configuration interfaces. A remote computer is considered to be any computer that is not on the local LAN. It is strongly recommended that you define a system password if you enable this option.

Set Time

Sets the internal system clock.

Set Date

Sets the internal system date, in yyyy-mm-dd format.

Get Time and Date button

Gets the time and date from your computer's clock.

Log Output

Remote IP Address

Sends event log information to the specified device. Choices:

- Disabled: Stops display of event log output, but does not stop recording of event log data.
- Send to Remote: The remote devices must implement a UNIX-compatible syslogd protocol to successfully receive event log messages. When this setting is selected, you must also enter the IP address of the remote device.

Connection Menu

Profile Name

Defines a name for this profile. The name must not contain spaces.

Note: *With X.25 or Frame Relay, you can create up to eight profiles. For PPP, you can create only one profile.*

Enable Profile

Enables/disables the current profile.

Backup Profile

Selects the backup profile to be used when this profile cannot connect. The backup profile is only invoked when the maximum number of connection retries has been exceeded, at which point a profile is set to a 'failed' state. The backup profile (if defined) is then used.

Connection Menu > Connection Group (when protocol is set to PPP)

Compression

Enables/disables PPP compression. When enabled, one of the following standards is automatically negotiated:

- Ascend
- MPPC
- MS-STAC
- STAC 1
- STAC 3

Default: Disabled.

Echo Request

Enables/disables the use of PPP echo requests. Some systems do not properly respond to PPP echo requests. To connect to such systems, PPP echo requests should be disabled.

Default: Enabled.

Idle Timer

Defines the idle timer for this profile, which controls how long a data call should stay connected when no traffic is being sent or received. When the idle timer expires, the call is disconnected.

Default: 120 seconds.

Range: 10-900 seconds. Specify 0 to disable automatic disconnection.

This parameter automatically changes to 900 seconds when [Manual Dialing](#) (page 68) is enabled.

Max Retries

Defines the maximum number of connection attempts this profile is allowed to make. When this limit is reached, the profile is placed in the 'failed' state. A backup profile, if defined, will be used on the next dial-out attempt.

To automatically reset the profile, enter a Profile Restore Delay on the Profile page. To reset the profile manually, dial it or reset the Eicon 1530.

Default: 25. Range: 0-250.

Retry Delay

Defines the amount of time in seconds to wait before allowing new attempts to connect. The default and range depend on the country.

Range: 1-1800. Default: 30.

Restore Delay

Defines how long to wait before automatically restoring a profile from 'failed' state to 'ready'.

Range: 300-65535 seconds. Specify 0 to disable automatic restore. Default: 300 seconds.

A profile fails if a connection cannot be established after the Max Retries limit (see the Connection page) is reached.

Connection Menu > Connection Group (when protocol is set to X.25)

Remote DTE Address

Defines the remote X.25 address the Eicon 1530 calls to establish the connection.

Range: 0-15 digits.

When the X.25 connection type is set to permanent (see the 'Connection Type' setting), this parameter defines the VC number used.

Compression Type

Defines the type of compression used for X.25 traffic.

- NONE: No compression.
- EICON: Compression negotiation: CCP (Compression Control Protocol). Compression algorithm: LZS-STAC. Check mode: LCB, Sequence number, and extended mode. Not compatible with Cisco routers.
- BAY: Compression negotiation: WCP. Compression algorithm: Magnalink. Check mode: LCB. Dictionary size: 8K or 32K.
- CISCO: Compression negotiation: None. Compression algorithm: LZS-STAC. Not compatible with Eicon mode.

Connection Type

Defines the type of connection that will be established with the remote device.

- TWOWAY: Both the Eicon 1530 and remote device can initiate the connection.
- INCOMING: The remote device must initiate the connection.
- PERMANENT: A PVC is permanently established between two destinations. No call setup is required.

Facilities

Sets the X.25 facilities used to establish an X.25 call with this profile. Encode facilities as a hexadecimal string of characters separated by commas, colons, or hyphens. Maximum length is 14 bytes. For example: 42,07,07

User Data

Specifies the call user data the device will include when establishing an X.25 call. Encode call user data as hexadecimal digits separated by commas, colons, or hyphens. Maximum length is 16 bytes. For example: 42,07,07

Idle Timer

Defines the maximum amount of time an X.25 connection can be idle before the connection is dropped.

Range: 1-600 seconds. Specify 0 to disable automatic disconnection.

Default: 20 seconds.

Minimum Connection Time

Defines the minimum amount of time an X.25 connection must stay connected.

Range: 0-1800 seconds. Default: 30 seconds.

Max Retries

Defines the maximum number of attempts this profile makes to establish a connection with this profile. When this limit is reached, the profile is placed in a “failed” state. To reset the profile manually, dial it or reset the Eicon 1530.

Range: 0-250. Default: 10

Retry Delay

Defines the amount of time to wait after a failed connection attempt, before retrying.

Restore Delay

Defines how long to wait before automatically restoring a profile from ‘failed’ state to ‘ready’.

Range: 300-65535 seconds. Specify 0 to disable automatic restore.

Default: 300 seconds.

A profile fails if a connection cannot be established after the Max Retries limit is reached.

Connection Menu > Connection Group (when protocol is set to Frame Relay)

Compression enable

Enables/disables compression when Frame Relay is used.

DLCI number

Defines the DLCI number for the current profile.

A DLCI is the Frame Relay equivalent of a hardware address, associated with an established Permanent Virtual Circuit (PVC).

Range: 16-1007.

Connection Menu > IP Group

Broadcast Enable

Enables/disables support for IP broadcasting.

Default: Disabled.

NAT Enable

Enables/disables NAT (Network Address Translation). With NAT enabled, only one IP address is used when communicating with remote sites via the external network. The real IP addresses of computers on the local LAN are never revealed to remote sites.

Default: Disabled.

Manual Dialing

Enables/disables manual dialing of this profile. With manual dialing enabled, this profile will NOT be automatically connected when data needs to be sent. Instead, you must manually connect the profile.

Note: When you enable this option for PPP profiles, the value of the Idle Timer is increased from 120 to 900 seconds.

Multicast Enable

Enables/disables support for IP multicasting. When disabled, IP multicast datagrams are not forwarded from the external network onto the internal Ethernet LAN. To allow computers on the internal LAN to subscribe to services that use IP multicasting as a delivery mechanism, you must enable this option.

Default: Disabled.

IP Address

Defines the IP address this connection profile should use when a static address is assigned to the Eicon 1530. In most cases, specify 0.0.0.0 to allow dynamic negotiation when the connection is established.

Subnet Mask

Defines the subnet mask this connection profile should use when a static address is assigned to the Eicon 1530.

Remote IP Address

Defines the IP address of the remote device to which this profile connects. Use this only in cases when a static IP address is assigned to the remote site. In most cases, specify 0.0.0.0 to allow dynamic negotiation of the address when the connection is established.

Connection Menu > RIP Group

RIP Version

Enables/disables support for RIP (Routing Information Protocol). When enabled, routing information will be exchanged with other devices.

Choices:

- Version 1: Supports RIP version 1.
- Version 2: Supports RIP version 2.
- V.2, compatible to V.1: Supports RIP version 2 that is version 1 compatible (implies broadcasting RIP-2 updates).
- Disable: Disables RIP support.

RIP Policy

Defines how route updates, requests, and responses are managed. Choices:

- Silent: RIP accepts updates from other systems, but will not respond to requests or send updates.
- Periodic: RIP sends a complete update to all neighbors and replies to all incoming requests (LAN only). This is how RIP operates normally.
- If Connected: Allow RIP updates only if connected.
- Snapshot Server:
- Snapshot Client:

RIP Update

Defines the amount of time to wait (in seconds) between sending updates to peers.

Default:

- 30 seconds when in LAN profile or X25 profile.
- 60 seconds when in PPP profile where POLICY is SILENT or IFCONNECTED.
- 120 seconds when in PPP profile where POLICY is PERIODIC or SNAPSHOT.

Route Merging

Enables/disables RIP route merging. When enabled, RIP merges all similar routes to reduce the routing table size and save memory.

Default: Disabled.

Connection Menu > Authentication Group (when protocol is set to PPP)

These parameters are only available when the protocol is set to PPP.

Local Username

Defines the name used when replying to valid authentication requests.

Range: 0-31 alphanumeric characters (no spaces).

Local Password

Defines the password used when replying to valid authentication requests.

Range: 0-31 alphanumeric characters (no spaces).

Always Use Encrypted Password

Defines how authentication is handled for a call. If the remote is not using the same type of password (encrypted/unencrypted), the call is rejected.

- ENCRYPTED: Accept calls using encrypted passwords only.
- ANY: Accept calls using either encrypted or unencrypted passwords.

Default: ANY (encrypted and unencrypted are accepted).

Always Authenticate Remote

Enables/disables password authentication when dialing out.

- If enabled, the Eicon 1530 attempts to authenticate the remote with whatever authentication method is defined.

Default: Disabled.

Remote Username

Defines the name the remote device must supply when authentication is requested by the Eicon 1530.

Range: 0-31 characters, no spaces.

Remote password

Defines the password the remote device must supply when authentication is requested by the Eicon 1530.

Range: 0-31 characters, no spaces.

Connection Menu > DNS Group

Domain Name

When DNS relay is enabled, each DNS request is checked against the name set with this command. If so, a connection defined by this profile is established, and the request is forwarded. Enter a DNS domain name (up to 32 alphanumeric characters), or use * to match any name.

Primary Address

Defines the address of the first DNS server where DNS requests are to be sent, when DNS Relay is enabled.

In most cases, leave this set to 0.0.0.0. This enables the Eicon 1530 to retrieve the correct address when it connects to the remote site (your ISP for example). In some cases, your ISP will supply you with an address to use.

Secondary Address

Defines the address of the second DNS server where DNS requests are to be sent. The secondary server is only used when the PRIMARY does not reply.

In most cases, leave this set to 0.0.0.0. This enables the Eicon 1530 to retrieve the correct address when it connects to the remote site (your ISP for example). In some cases, your ISP will supply you with an address to use.

IP Menu

DNS Relay

Enables DNS requests.

When enabled, all DNS requests are forwarded to a remote DNS server. This is done by matching the requested domain against the domain name assigned to each profile. If a match is found, the profile is connected and the DNS request is forwarded.

Default: Enabled.

TFTP Server

Enables/disables TFTP (Trivial File Transfer Protocol).

When enabled, the Eicon 1530 acts as a TFTP server and can respond to upload or download requests from TFTP clients.

Default: Disabled.

IP Spoofing

Enables/disables spoofing. When enabled, all TCP keep-alive datagrams and all Microsoft Server Message Block datagrams are spoofed. In addition, all NetBIOS over IP name service traffic is dropped.

Default: Enabled.

IP Services

Defines the level of support provided for Microsoft NetBIOS services, which are integrated into Microsoft TCP/IP. NetBIOS is required to support Microsoft Windows Network Neighborhood, the MAP NETWORK option in Windows Explorer, and various DOS-based networking commands (such as net use, net view, and net logon). Choices:

- All: All NetBIOS traffic is forwarded to the remote site. This may result in substantial connection charges unless you have a flat rate connection, as outgoing calls will be made frequently.
- Intelligent: Provides full support for all Network Neighborhood functions, but spoofs unnecessary traffic to reduce usage.
- Minimal: Reduces NetBIOS traffic to a minimum. Does not support Network Neighborhood functions. However, the MAP NETWORK option in Windows Explorer is supported, along with DOS-based networking commands such as net use, net view, and net logon. This is the most economical solution.
- None: All NetBIOS traffic is discarded.

Routes Menu (IP Tree)

Network Address

Defines the IP address of a network where data should be routed. This address is compared against the destination address of all IP datagrams that pass through the Eicon 1530. If a match is found, the IP datagram is routed to the profile you specify under Interface.

Data is transported in frames on an Ethernet LAN or packets on an X.25 network. This is similar to datagrams on TCP/IP networks.

Mask Length

Defines the mask associated with the network address. Mask length determines how many bits in the address are significant for routing. Each of the four decimal numbers that make up an IP address is represented by 8 bits. For example, if you specify the network address 213.119.13.1, then:

- an 8-bit mask routes on 213.0.0.0
- a 16-bit mask routes on 213.119.0.0
- a 24-bit mask routes on 213.119.13.0
- a 32-bit mask routes on 213.119.13.1

Gateway Address

This setting is used only when you select LAN for the **Interface** parameter. It enables you to route traffic to a device on the Ethernet LAN, instead of out to the external network via a profile. Usually this is the address of a gateway that provides access to another network.

Interface

Defines the profile that will be used to route data. The profile you choose should establish a connection to the proper destination so that routing is successful.

If you select LAN, data is routed to the gateway address you specify, which must be reachable on the local Ethernet LAN created by the Eicon 1530.

Select NONE to disable the route.

Metric

Metrics determine the weight of a route.

If two identical routes exist, then the Eicon 1530 uses the route with the lower metric.

Range: 1-15. Specify 16 to indicate that the route should never be used.

Default: 1.

Filters Menu (IP Tree)

See [Custom Security Features using IP Filters](#) on page 53 for information on the settings available when creating filters.

NAT Mapping Menu (IP Tree)

Default NAT Server

Defines the IP address of the device where all unresolved datagrams should be forwarded.

Protocol

Defines the protocol that is used. Choices:

- UDP: The server uses the UDP protocol.
- TCP: The server uses the TCP protocol.

Server Port

Defines the TCP or UDP port the server uses.

For example, if you are setting up an SMTP server, set **Protocol** to TCP and **Server port** to 25 (25 is the conventional SMTP port).

Server IP Address

Defines the IP address of the server.

Time Client Menu (IP Tree)

Enable Time Protocol

Enables/disables the use of the time protocol. When enabled, the Eicon 1530 will periodically contact a time server in order to set its internal clock.

Default: Enabled.

Server Address

Defines the IP address of the time server the Eicon 1530 should use when automatically updating its internal clock. The address 255.255.255.255 will broadcast the request to all stations on the network.

Time Zone

Defines the difference between your time zone and Greenwich Mean Time (GMT) in hours.

Range: -12 to 12. Default: 0.

SNMP Menu (IP Tree)

System Name

Defines a name for the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 0-29 characters.

System Description

Defines a description for the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 0-39 characters.

System Contact

Defines the E-mail address of the person responsible for the Eicon 1530.

This information can be retrieved by SNMP agents.

Range: 0-39 characters.

System Location

Describes the physical location of the Eicon 1530.

This information can be retrieved by SNMP agents.

Range: 0-29 alphanumeric characters.

Community

Defines the SNMP community name for the Eicon 1530.

The community name acts as a password controlling SNMP read and write access to all Eicon 1530 configuration settings.

Range: 0-31 characters, no spaces.

Trap Address

Defines the IP address, in dotted-decimal format, of the remote station where LAN Manager will send SNMP traps. All standard MIB II traps are supported.

DHCP Menu (IP Tree)

The parameters displayed on the DHCP page will depend on the choice of DHCP type (server, relay, or none).

DHCP

Sets the type of DHCP services the Eicon 1530 should offer. By default, DHCP services are enabled (see 'DHCP Server Enabled' below).

- **NONE:** No DHCP services are supplied, and DHCP requests are ignored.
- **SERVER:** The Eicon 1530 will act as a DHCP server and will assign IP addresses in response to DHCP requests by network devices.
- **RELAY:** The Eicon 1530 will relay DHCP requests to a separate DHCP server.

DHCP Server Enabled (DHCP = Server)

When acting as a DHCP server, the Eicon 1530 is responsible for assigning IP addresses when it receives a DHCP request from a network device. In other words, the Eicon 1530 will assign IP addresses to each computer on the internal Ethernet LAN.

This option is enabled by default. You should not disable it unless the Eicon 1530 is connected to a network that provides its own DHCP services. Note that if the Eicon 1530 detects an existing DHCP server on the local network, it will de-activate its own DHCP server.

Starting IP Address (DHCP = Server)

Defines the starting IP address the Eicon 1530 uses when assigning DHCP addresses.

This address must be on the same network as the Eicon 1530's LAN IP address.

Default: 192.168.1.2

Number of Addresses (DHCP = Server)

Defines the maximum number of addresses in the dynamic DHCP address pool.

Range: 1-50. Default: 50.

Lease Duration (DHCP = Server)

Defines the length of time a client address (assigned by the Eicon 1530) is valid.

Range: 30 minutes to 30 days. Default: 1 hour.

DHCP Domain Name (DHCP = Server)

Defines the domain name returned in response to a DHCP request, when the DHCP server is enabled.

Range: 0-31 characters, no spaces.

Primary DNS (DHCP = Server)

Defines the IP address of the primary DNS server that the Eicon 1530 returns to DHCP clients, when the DHCP server is enabled. By default, the address 192.168.1.1 is returned, which is the default address of the Eicon 1530.

Secondary DNS (DHCP = Server)

Defines the IP address of the secondary DNS server that the Eicon 1530 returns to DHCP clients, when the DHCP server is enabled.

Primary WINS (DHCP = Server)

Defines the IP address of the primary WINS server that the Eicon 1530 returns to DHCP clients, when it is acting as a DHCP server.

Secondary WINS (DHCP = Server)

Defines the IP address of the secondary WINS server that the Eicon 1530 returns to DHCP clients, when it is acting as a DHCP server.

Number of Hops (DHCP = Relay)

Defines the maximum hop count supported for DHCP relay requests. If a DHCP request is received with a hop count greater than the value of this parameter, the Eicon 1530 discards the request.

Range: 1-16. Default: 4.

Delay (sec) (DHCP = Relay)

Defines how long the Eicon 1530 waits before relaying a DHCP request. Since DHCP requests and responses are broadcast to all stations on a LAN, the Eicon 1530 must check that no other DHCP server has responded to a DHCP request before it forwards the request to the external network.

Range: 1-30 seconds. Default: 4 seconds.

Primary / Secondary Address (DHCP = Relay)

Defines the address of the DHCP servers where DHCP requests are to be forwarded, when DHCP relay is enabled. The secondary IP address is used if the primary server is unavailable.

LAN Menu

IP Address

Defines the IP address for the Eicon 1530 on the Ethernet LAN it creates. By default, this address is set to 192.168.1.1, and you should not change it. However, if you are installing the Eicon 1530 on an existing LAN, you may need to change this value so that it is appropriate for your LAN setup.

Subnet Mask

Defines the subnet mask for the Eicon 1530 on the Ethernet LAN it creates.

Default: 255.255.255.0.

Broadcast Enable

Enables/disables support for IP broadcasting.

Default: Disabled.

Multicast Enable

Enables/disables support for IP multicasting.

When disabled, IP multicast datagrams are not forwarded from the external network onto the internal Ethernet LAN. To allow computers on the internal LAN to subscribe to services that use IP multicasting as a delivery mechanism, you must enable this option.

Default: Enabled.

LAN Menu > RIP Group

RIP Version

Enables/disables support for RIP (Routing Information Protocol). When enabled, routing information will be exchanged with other devices.

Choices:

- Version 1: Supports RIP version 1.
- Version 2: Supports RIP version 2.
- V.2, compatible to V.1: Supports RIP version 2 that is version 1 compatible (implies broadcasting RIP-2 updates).
- Disable: Disables RIP support.

RIP Policy

Defines how route updates, requests, and responses are managed. Choices:

- Silent: RIP accepts updates from other systems, but will not respond to requests or send updates.
- Periodic: RIP sends a complete update to all neighbors and replies to all incoming requests (LAN only). This is how RIP operates normally.

Route Merging

Enables/disables RIP route merging. When enabled, RIP merges all similar routes to reduce the routing table size and save memory.

Default: Disabled.

LAN Menu > DNS Parameters Group

Domain Name

When DNS relay is enabled, each DNS request is checked against this parameter. If they match, a connection defined by this profile is established, and the request is forwarded.

Range: 0-32 characters, or use * to match any name.

Primary Address

Defines the address of the first DNS server where DNS requests are to be sent, when DNS Relay is enabled.

In most cases, leave this set to 0.0.0.0. This enables the Eicon 1530 to retrieve the correct address when it connects to the remote site (your ISP for example). In some cases, your ISP will supply you with an address to use

Secondary Address

Defines the address of the second DNS server where DNS requests are to be sent. The secondary server is only used when the PRIMARY does not reply.

In most cases, leave this set to 0.0.0.0. This enables the Eicon 1530 to retrieve the correct address when it connects to the remote site (your ISP for example). In some cases, your ISP will supply you with an address to use.

VHSI Port Menu

Line Interface

Defines the type of line connected to the VHSI port. Choices:

- Leased: The port is connected to a null-modem cable or a modem that links to a dedicated leased line.
- Dial: The port is connected to a modem that must be dialed to make a connection.

Duplex

Defines the type of device the VHSI port is connected to. Choices:

- Full: The port is connected to a full-duplex device. This is the most common case and is usually the choice for an X.25/QLLC connection.
- Half: The port is connected to a half-duplex device. This is most often used on an SDLC connection.

Multidrop

Defines the type of line connected to the VHSI port: point-to-point or multi-point.

VSHI Interface

Defines the VHSI port interface: RS-232 (V.24) or V.35. Specify 'Autodetect' to have the Eicon 1530 detect the type of interface automatically.

Data Encoding

Defines the type of data encoding used on the VHSI port.

This setting must match that of the remote system.

- NRZ: Enable Non Return to Zero encoding. Can be used for internal or external clocking.
- NRZI: Enable Non Return to Zero Inverted encoding. Can be used with internal or external clocking, and INT-DPLL (Internal Digital Phase Lock Loop) or EXT-DPLL (External Digital Phase Lock Loop) with a line speed limit of 19,200 bps.
- FM0: Enable FM0 (also known as biphase space) encoding. Can only be used with INT-DPLL clocking with a speed limit of 38,400 bps.
- FM1: Enable FM1 (also known as biphase mark) encoding. Can only be used with INT-DPLL clocking with a speed limit of 38,400 bps.

Clocking

Defines how the VHSI port is clocked, which controls synchronization and the rate of data exchange on the line.

- EXTERNAL: The port uses the clock supplied by the device it is connected to (DCE) for receiving and transmitting.
- INTERNAL: The port generates an internal clock for receiving and transmitting, and outputs this clock on the interface for use by the device it is connected to (DCE).
- EXTDPLL: The port employs a DPLL that uses a DCE generated clock at 32 (NRZI) or 16 (FM) times the data rate.
- INTDPLL: The port employs a DPLL that uses an internally generated clock at 32 (NRZI) or 16 (FM) times the data rate.

Line Speed

Defines the speed at which the VHSI port operates, in bits per second (bps). Certain restrictions inherent to the network to which the Eicon 1530 is connected can limit throughput. Speeds in excess of 128 kbps are possible on dedicated lines, but public X.25 networks may be as slow as 2400 bps. This parameter is used only when Line Speed is set to INTERNAL. When external clocking is selected, the device providing the clock sets the line speed.

VHSI Port Menu > Delays Group

DCD (off) -> RTS (on) Delay

Defines the DCD(off) -> RTS(on) delay.

This is the delay before the remote is allowed to send at the end of reception. This parameter is intended for non-standard physical interfaces, and is for half-duplex lines only.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

RTS (off->on) Maximum Delay

Defines the RTS (on) -> RTS (off) maximum delay.

This is the amount of time the transmitter may be active before turning the line around. This parameter is for half-duplex lines only.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

DCD (on->off) Maximum Delay

Defines the DCD (on) -> DCD (off) maximum delay.

This is the maximum length of time the remote device is allowed to transmit data. If this limit is exceeded the line is disconnected. This parameter is only used for half-duplex lines.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

TX Idle Timeout

Defines the Tx Idle Timeout.

When the transmitter finishes sending a frame, it starts the Tx Idle Timer. If this timer expires before another frame is available for sending, the transmitter is turned off. This parameter is only used in half-duplex mode.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

Protocol Menu (VHSI Tree) (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

Node Type

Defines if the Eicon 1530 functions as DTE (Data Terminal Equipment) or DCE (Data-Circuit terminating Equipment). Consult your network subscription for the proper setting

Default: DTE.

- DTE: Use when connected to an X.25 network, or to another computer configured as DCE.
- DCE: Use when connected to another computer configured as DTE.

Local DTE Address

Defines the X.25 DTE address assigned to the Eicon 1530.

Range: 0-15 digits.

Default Window Size

Defines the default X.25 window size.

Range: 1-7. Default: 2.

Maximum Window Size

Defines the maximum X.25 window size.

Range: Default window size to 7. Default: 7.

Packet Format

Defines the type of packets supported. Consult your network subscription to see if you can make use of Extended Packet features. This parameter affects Window size.

- BASIC: Supports only the standard packets used on all networks.
- EXTENDED: Supports the use of extended clearing, call user data, and other features available only on certain networks.

Default Packet Size

Defines the default X.25 packet size.

Range: 64-1024 bytes. Default: 128 bytes.

Maximum Packet Size

Defines the maximum X.25 packet size.

Range: Default packet size to 1024 bytes. Default: 256 bytes.

X25 Version

Defines the version of the X.25 protocol to use.

- 1984: ITU recommendation 1984
- 1988: ITU recommendation 1988

TOA/NPI Addressing

Enables/disables support for TOA/NPI addressing. This parameter only applies if the X.25 version is set to 1988.

Maximum Retry Count (N3)

Defines how many times an X.25 packet that is not successfully being received by the remote will be retransmitted.

Range: 0-99. Default: 3.

Protocol Menu (VHSI Tree) > Virtual Circuits Group (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

PVC - Permanent Virtual Circuits

Defines settings for PVCs (Permanent Virtual Circuits). A PVC is permanently established between two destinations. No call setup is required.

IVC - Incoming Virtual Circuits

Defines settings for IVCs (Incoming Virtual Circuits). An IVC can only receive calls.

TVC - Two-way Virtual Circuits

Defines the settings for TVCs (Two-way Virtual Circuits). A TVC can both make and receive calls.

OVC - Outgoing Virtual Circuits

Defines the settings for OVCs (Outgoing-only Virtual Circuits). An OVC can only issue calls and not receive them.

Sequential Assignment of VCs

Enables/disables sequential assignment of virtual circuits. Most X.25 networks assign virtual circuits sequentially. However, some networks, such as British Telecom's Packet Switch Stream, assign virtual circuits non-sequentially using Logical Channel Group numbers. If this is the case, you must define the starting LCN (Logical Channel Number) for each group of virtual circuits (PVC, IVC, TVO, and OVC).

Default: Enabled.

Protocol Menu (VHSI Tree) > Timers Group (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

T20 - Packet Level Restart Timer (Timers Group)

The Packet Level Restart timer is started when a Restart Request packet is sent. It is stopped when a Restart Confirm or Restart Request packet is received. On expiration, the Packet Level interface is closed.

Range: 0-999 seconds. Default: 60.

T21 - Call Supervision Timer (Timers Group)

The Call Supervision timer is started when a Call Request packet is sent. It is stopped when a Call Accepted or Call Cleared packet is received. On expiration, a Clear Request packet is sent.

Range: 0-999 seconds. Default: 60.

T22 - Reset Supervision timer (Timers Group)

The Reset Supervision timer is started when a Reset Request packet is sent. It is stopped when a Reset Confirmed or Reset Request packet is received. On expiration, the Reset Request packet is retransmitted.

T23 - Clear Supervision Timer (Timers Group)

The Clear Supervision timer is started when a Clear Request packet is sent. It is stopped when a Clear Indication or Clear Confirmation is received. On expiration, the Clear Request packet is retransmitted.

Range: 0 to 999 seconds. Default: 60.

Acknowledge Timer (Timers Group)

Defines the Acknowledge timer, which is how long, in milliseconds, the line can remain idle before an RR (Receiver Ready) is sent to the remote. This lets the remote know that the connection is still active. The remote will respond with an RR.

Range: 0-9999. Default: 20.

HDLC Menu (VHSI/Protocol Tree) (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

Maximum Frame Size N1

Defines the maximum frame size.

This parameter can generally be determined by adding 5 to the Maximum Packet Size. However, if your Maximum Packet Size is less than 256, and you are using the Fast Select feature, then find the size, in bytes, of the following parameters and add them together:

- Direct Header (1)
- HDLC Packet Header (2, or 3 for extended sequence)
- X.25 Packet Header (3, or 4 for extended sequence)
- DTE Address Length (1)
- DTE Address (0 to 15)
- Facility Length (1)
- Facilities (0-63)
- User Data (0-16)
- Fast Select
- Client Data (0-128)

If the exact value cannot be calculated, this parameter can be set to a higher value than needed. For example, if set to 261, it will accommodate any packet size up to 256 bytes.

Connections using the X.25 protocol use the HDLC protocol at a lower level. As a result, the valid ranges and default values may vary as follows:

HDLC only:

- Range: 1-8194.
- Default: 1504.

X.25 over HDLC:

- Range: (X.25 Max Packet Size + 5) - 1029.
- Default: 144.

Maximum Window Size K

Defines the Maximum Window Size, which is the number of frames that are to be sent before the Eicon 1530 waits for an acknowledgment from the remote device. In certain situations, you may wish to define a large window size (with satellite networks that have significant transmission delays, for example). The maximum window size can never be exceeded, and it must match on both sides of the link.

Range: 1-7, or 1-127 if Extended Sequence Mode is enabled. Default: 7

Extended Sequence Mode is defined with the 'Sequence' parameter.

Link Setup

Defines how the HDLC Link setup procedure is handled. Applies only if a DTE port has been configured. Default: Active.

- Active: The Eicon 1530 will initiate the setup procedure. This option is generally used with DTE addressing.
- Passive: The Eicon 1530 will wait for the remote device to initiate the setup procedure.

Sequence

In 1984, the CCITT added an Extended Sequence definition to the X.25 specification. These features are useful for networks with long transmission delays, such as satellite networks. Consult your network provider to see if you can make use of Extended Sequence features. This parameter increases the range of values available for Maximum Window Size. Default: Normal.

- Normal: Sets the range for Maximum Window Size to 1-7. Use for most networks.
- Extended: Sets the range for Maximum Window Size to 1-127. Use for networks supporting the Extended Sequence definition.

GOSIP

Enables/disables support for the Government Open Systems Interconnect Profile (GOSIP) requirements for data communications products.

Default: Disabled.

X32 Dialout

Enables/disables X.32 dialout. Default: Disabled.

Maximum Retry Count (N2)

Defines the Maximum Retry Count, which is the limit to the number of retries made when a particular frame meets with repeated negative acknowledgments from the remote device.

Range: 1-99.

Default: 10.

Reject RR/RN/REJ Frames

Enables/disables rejection of RR/RNR/REJ frames that have their poll bit set to 0. Certain networks use the HDLC poll bit in a non-standard manner and require special handling of the three frame types:

- RR (receiver ready) frames
- RNR (receiver not ready) frames
- REJ (reject) frames

Normally, when any of these three frames are received as commands with the poll bit set to 0, they are rejected. Non-standard networks may not want these frames to be rejected.

HDLC Menu (VHSI/Protocol Tree) > X32 Services Group (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

Service

Variations of the HDLC protocol expand upon the protocol to provide additional information to the host and client systems.

Default: NONE.

- NONE: Standard implementation of HDLC.
- ERIPAX: A variation of HDLC made to work on Ericsson private networks. The ERIPAX XID helps identify you to other network clients even when you are using a dial-up line.
- CCITT: A CCITT standard variation of the HDLC protocol providing parameters to help identify you to other network clients even when you are using a dial-up line.
- TRANSPAC: A variation of HDLC made to work on the Transpac network in France. The Transpac ID and SID parameters identify you to other network clients even when you are using a dial-up line.

HDLC Menu (VHSI/Protocol Tree) > Timers Group (when protocol is set to X.25)

These parameters are only available when the protocol is set to X.25.

Checkpoint T1

Defines the Check Point Timer, which specifies how long to wait for a response from the remote device before an attempt is made to determine its status. This parameter should be set to slightly greater than twice the transmission time of the longest frame.

Range: 200-9999 milliseconds. Default: 2900 milliseconds.

Ack Delay T2

Defines the Ack Delay Timer.

To optimize communications efficiency, acknowledgments can be piggy-backed onto outgoing frames rather than being sent out on their own. The Ack Delay Timer defines the length of time the device should wait for an outgoing information frame, before sending the acknowledgement by itself. This setting (T2) should always be much less than the Check Point Timer (T1); otherwise, the remote device may time out and try to recover before the acknowledgment is received.

Range: 0-9999 milliseconds. Default: 200 milliseconds.

Idle Probe T3

Defines the Idle Probe Timer, which specifies how long the link should remain idle before the Eicon 1530 sends an RR (Receiver Ready) frame, with a P bit set, to the remote device. This is done in order to determine its status. The remote device, if still functioning, will respond using an RR frame with the F bit set.

Range: 0-99999 milliseconds. Default: 15000 milliseconds.

Protocol Menu (VHSI Tree) (when protocol is set to Frame Relay)

These parameters are only available when the protocol is set to Frame Relay.

Local management interface

Defines the Local Management Interface (LMI) protocol supported on the network. LMI is a protocol and associated procedures operating on the local interface between the machine user and the network. LMI provides management of Data Link Connection Identifiers (DLCI), which have their endpoints and bearer capabilities defined at subscription time. Pre-ANSI LMI is older, and ANSI T1.617 Annex D is newer. Networks usually support one or the other.

- ANNEXA: ITU-T Q.933 Annex A
- ANNEXD: ANSI T1.617 Annex D Local In-channel Signaling.
- AUTOLMI: Automatically detects which LMI protocol is in use, in the following order: Annex D, LMI, Annex A, None.
- LMI: Pre-ANSI LMI protocol.
- NONE: No LMI protocol selected. If LMI is set to none, you are not required to configure the settings LMIN1, LMIN2, LMIN3, and LMIT1.

Default: AUTOLMI.

Maximum number of DLCI (P1)

Defines the maximum number of Permanent Virtual Connections (analogous to X.25 PVCs) that can be active simultaneously. Once allocated, each DLCI can be changed to reflect the DLCI assigned at subscription time.

Range: 1-8.

Default: 1.

Information field size (dN1)

Defines the maximum number of bytes of user data that can be contained in a Frame Relay frame.

Range: 19-4096.

Default: 1514.

Full status polling cycle (N1)

Defines the number of polling cycles before a Full Status Report is requested. A polling cycle is a Status Enquiry and Status message exchange. This setting determines the time the user device takes to recognize a change in status on a DLCI from the Frame Relay network. This may include the addition or deletion of a DLCI by the network.

Range: 1-255.

Default: 6.

Error threshold (N2)

Defines the maximum number of Reliability Errors and/or Protocol Errors that can occur during a sliding Monitored Events Count, before a Frame Relay connection is declared inactive. This parameter should always be less than or equal to the Monitored Events Count.

Range: 1-10.

Default: 3.

Monitored events count (N3)

Defines the Monitored Events Count, which is the number of successful polling cycles required before the Frame Relay port can be declared active. If the port has been declared inactive, the network waits the specified number of monitored events before declaring it active again.

Range: 1-10.

Default: 4.

Note: For a DLCI to be declared inactive, the amount defined for N2 (Reliability Errors and/or Protocol Errors) must be reached within the specified number of monitored events. This prevents transient conditions from declaring a DLCI inactive.

Link integrity verification timer (T1)

Defines how frequently the Eicon 1530 WAN Router should initiate a Status Enquiry message. This timer must be set to less than the timer used by the Frame Relay Network to verify that the Eicon 1530 WAN Router is sending Status Enquiry messages. To determine the Frame Relay Network timer value, contact your network administrator.

Possible values: 5, 10, 15, 20, 25, 30 (seconds).

Default: 10 seconds.

Committed information rate

Defines the Committed Information Rate (CIR) in bits per second. The CIR is the rate at which the network transfers information under normal conditions. The service provider typically sets pricing based on the CIR (including other criteria) with rate guarantees.

Range: 2400-2048000.

Default: 9600.

Protocol Menu (VHSI Tree) > Dynamic DLCI Group (when protocol is set to Frame Relay)

These parameters are only available when the protocol is set to Frame Relay.

Enable Dynamic DLCI

Defines the DLCI mode.

Enabled: Enables dynamic configuration of new DLCIs for this connection. Dynamic DLCI (also referred to as "DLCI discovery") eliminates the need for static configuration of new DLCIs. All previously configured DLCIs for this connection are removed. Dynamic DLCI is performed automatically by the Frame Relay Bearer Service, so you do not have to configure a separate DLCI for each Permanent Virtual Circuit in your Frame Relay network.

Disabled: Enables static configuration of new DLCIs for this connection. In this mode, each DLCI must be defined manually.

Global window size

Defines the Frame Relay window size for all discovered DLCIs on a given Frame Relay connection, which determines the number of packets that can be sent before waiting for an acknowledgment. Only applicable if Dynamic DLCI is enabled. Used for transmission buffer control.

Range: 1-255.

Default: 2.

Static DLCI Menu (VHSI/Protocol Tree) (when protocol is set to Frame Relay)

These parameters are only available when the protocol is set to Frame Relay.

Number

Defines a Data Link Connection Identifier (DLCI).

A DLCI is the Frame Relay equivalent of a hardware address, associated with an established Permanent Virtual Circuit (PVC).

Range: 16-1007.

Window Size K

Defines the Frame Relay window size for the specified DLCI.

Range: 1-255.

Default: 2.

Dialer Menu (VHSI Tree)

RI (on) -> DTR (on)

Defines the RI(on) -> DTR(on) delay.

Range: 0-9999 milliseconds. Default: 0 milliseconds.

DSR(on) -> RTS (on)

Defines the DSR(on) -> RTS(on) delay.

Range: 0-9999 milliseconds. Default: 0 milliseconds.

DSR Debouncing

Defines the DSR debouncing delay.

Range: 0-999 milliseconds. Default: 100 milliseconds.

Max Delay to Establish Connection

Defines the maximum delay for establishing a connection.

Range: 15000-65000 milliseconds. Default: 15000 milliseconds.

DSR Mode

Defines the DSR mode as Normal or Ignore. Default: Normal.

Selecting an Interface Cable

The interface cable for the VHSI port is not included with your package. Cables can be ordered separately from Eicon Networks, or you can construct one yourself using the specifications contained in this section.

- [Interface Cables available from Eicon Networks](#) 100
- [Interface Cable Specifications](#)..... 101

Interface Cables available from Eicon Networks

The Eicon 1530 can connect to Customer Service Units (CSUs) or Data Service Units (DSUs) which support one of the V.24 or V.35 interfaces, including compatible Eicon Networks Eiconcards (such as the C series) using a V.24 cable.

Note: *Two Eicon 1530 devices cannot be connected back-to-back.*

The following table lists the most common connections supported by the VHSI port, and specifies the part number of the required Eicon Networks cable. For information on making your own cables, see “Interface Cable Specifications” on page 101.

Interface	Connection	Part #
V.24	to V.24 DCE	300-077
	to V.24 DTE	300-078
V.35	to V.35 DCE	300-076
	to V.35 DCE (France)	300-083

To use an interface, simply connect the appropriate cable. The Eicon 1530 recognizes the cable and automatically configures the port for that interface. Consult the documentation which came with your networking software for more information about port configuration.

Interface Cable Specifications

This section describes the specifications for each interface supported on the Eicon 1530.

If you plan to construct your own VHSI cables, be sure to observe the guidelines given below.

Cable Specifications

Interface	Standard	Compatibility
V.24	CCITT V.24	Signaling
	CCITT V.28	Electrical
	CCITT X.21bis	Electrical and signaling
	EIA RS-232-C	Electrical and signaling
	ISO 2110	Connector type for the DCE side of a V.24 VHSI Modem Cable
V.35	CCITT V.28	Some signals for electrical
	CCITT V.35	Some signals for electrical and signaling
	ISO 2593	Connector type for the DCE side of a V.35 VHSI Modem Cable

Wire Gauge, Grounding, and Pairing

- Use 28 AWG 7-strand wire with 0.020-0.028" insulation.
- The chassis must be grounded both by a drain wire and by the braid; both must be connected to the connector case and shell at each end of the cable. The braid must be connected through its full circumference.
- Wires identified under the heading 'Twisted Pairs' must be paired. If you do not install twisted pairs correctly, the cable will not work.

Type of Connectors

The VHSI port accepts a high density 36-pin male cable connector. The types of connectors used on the interface-specific end of the cable are as follows:

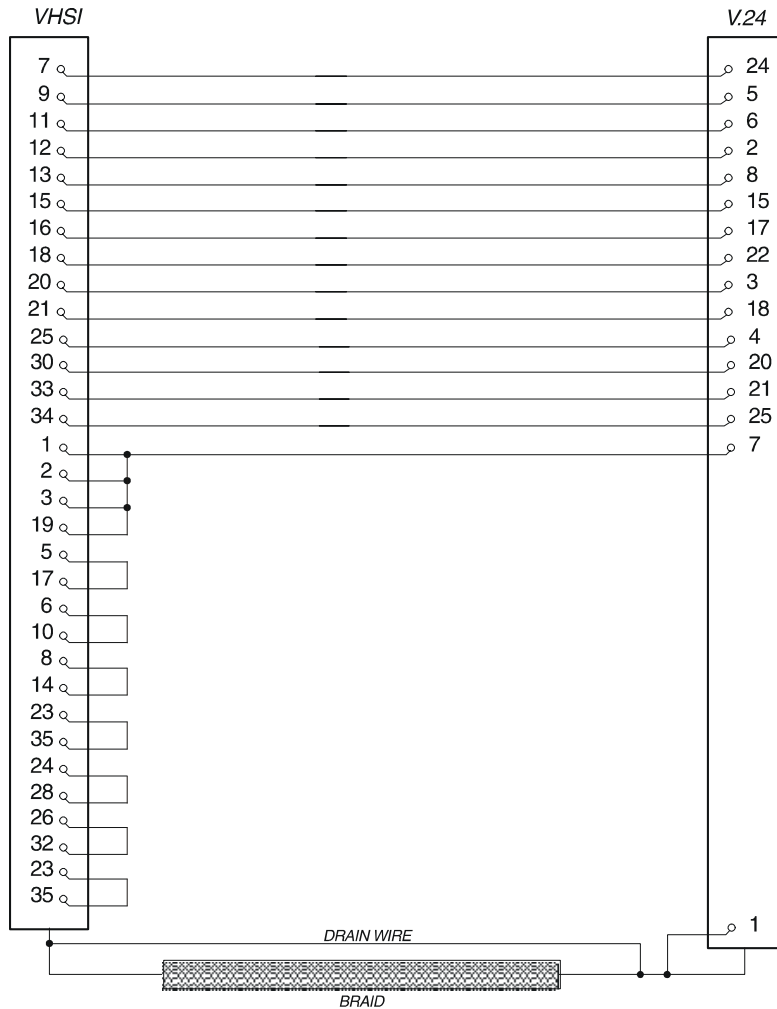
- V.35: Type M
- V.24: DB25

The V.24 Interface

The V.24 interface pin-out diagram and signal definitions and names are shown below.

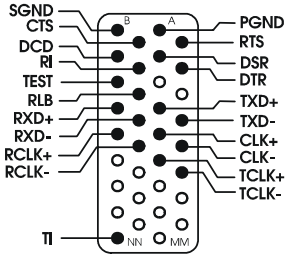
<p>The diagram shows a 25-pin connector with the following signals: PGND (Pin 1), TXD (Pin 2), RXD (Pin 3), RTS (Pin 4), CTS (Pin 5), DSR (Pin 6), SGND (Pin 7), DCD (Pin 8), TCLK (Pin 15), RCLK (Pin 17), TEST (Pin 18), DTR (Pin 20), RLB (Pin 21), RI (Pin 22), DTECLK (Pin 24), and TI (Pin 25). Pins 13 and 14 are also shown but not labeled with signals.</p>	Pin #	Signal	Name	Direction	CCITT #
	1	PGND	Protective Ground	Common	101
	2	TXD	Transmit Data	Output	103
	3	RXD	Receive Data	Input	104
	4	RTS	Request to Send	Output	105
	5	CTS	Clear to Send	Input	106
	6	DSR	Data Set Ready	Input	107
	7	SGND	Signal Ground	Common	102
	8	DCD	Data Carrier Detect	Input	109
	15	TCLK	Transmit Clock (DCE)	Input	114
	17	RCLK	Receive Clock	Input	115
	18	TEST	Local Loopback Activation	Output	141
	20	DTR	Data Terminal Ready	Output	108
	21	RLB	Remote Loopback	Output	140
	22	RI	Ring Indicator	Input	125
	24	DTECLK	Transmit Clock (DTE)	Output	113
	25	TI	Test Indicator	Input	142

The wiring diagram below shows the connections required to construct a VHSI-V.24 cable.

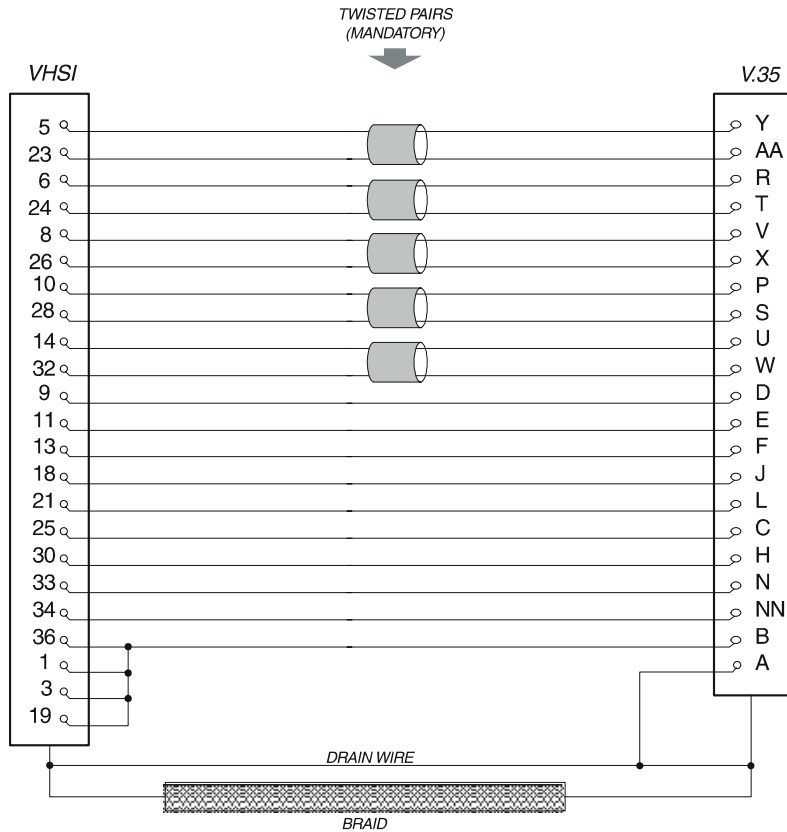


The V.35 Interface

The V.35 interface pin-out diagram and signal definitions and names are shown below.

	Pin #	Signal	Name	Direction	CCITT #
	A	PGND	Protective Ground	Common	101
	B	SGND	Signal Ground	Common	102
	C	RTS	Request to Send	Output	105
	D	CTS	Clear to Send	Input	106
	E	DSR	Data Set Ready	Input	107
	F	DCD	Data Carrier Detect	Input	109
	H	DTR	Data Terminal Ready	Output	108
	J	RI	Ring Indicator	Input	125
	L	TEST	Local Loopback Activation	Output	141
	N	RLB	Remote Loopback	Output	140
	P	TXD+	Transmit Data	Output	103A
	R	RXD+	Receive Data	Input	104A
	S	TXD-	Transmit Data	Output	103B
	T	RXD-	Receive Data	Input	104B
	U	CLK+	Transmit Clock (DTE)	Output	113A
	V	RCLK+	Receive Clock (DCE)	Input	115A
	W	CLK-	Transmit Clock (DTE)	Output	113B
	X	RCLK-	Receive Clock (DCE)	Input	115B
	Y	TCLK+	Transmit Clock (DCE)	Input	114A
	AA	TCLK-	Transmit Clock (DCE)	Input	114B
	NN	TI	Test Indicator	Input	142

The wiring diagram below shows the connections required to construct a VHSI-V.35 cable.



Command Line Interface

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Overview

This section provides a description for all commands available for the Eicon 1530.

Accessing the CLI

To access the command line interface, use a telnet program (such as Telnet included with Windows, or HyperTerminal) to telnet using the LAN IP address of your Eicon 1530. By default this address is 192.168.1.1. For example, from within Windows, click 'Start', 'Run', type in the following, then click 'OK'.

```
telnet 192.168.1.1
```

A Telnet window should appear asking you for a password.

Notational Conventions

The section uses the following conventions:

Syntax Example	Description
RESET	UPPERCASE TYPE indicates keywords. The actual words can be entered in either uppercase or lowercase.
[/C n]	Items enclosed in square brackets are optional. You can either include them or not. Do not enter the brackets. If the items are separated by vertical bars, you must choose one of the items. Enter only one item. Do not enter the vertical bar.
numHops	Items in lowercase type are user-supplied input. Replace these items with values appropriate to your system.
{ THIS THAT }	Two or more items enclosed in braces and separated by a vertical bars means you must choose one item. Enter only one item. Do not enter the vertical bar.

General Commands

HELP

Displays the general help on using the CLI.

SHOW CONFIGURATION

Displays a list of all the commands that define the current configuration and their current settings.

MONITOR

Invokes monitor mode. Monitor mode is used for uploading new firmware or for making a dump of system memory for debugging purposes. You can set the Eicon 1530 to automatically invoke monitor mode when a fatal error occurs with the SET ONERROR command.

PING Ipaddr [number] [size]

Lets you determine if an IP address is reachable.

Ipaddr: IP address of the device to PING.

number: Number of messages to send. Range: 1-no limit. Default: 4.

size: size of the message in bytes. Range: 1-1472. Default: 64.

RESET [FACTORY]

If no parameter is given, resets the Eicon 1530 using the current parameters.

If you specify FACTORY, this command resets the Eicon 1530 and returns all parameters to their factory default settings. **WARNING:** This command deletes all user-defined profiles, settings, and passwords.

HUB: Resets only the Ethernet Port.

LOGOUT

Closes the current configuration session.

SET ONERROR { HALT | RESET }

Defines what should happen when a fatal error is encountered and the Eicon 1530 cannot continue to operate normally.

HALT: Activate monitor mode when a fatal error is encountered. The Power light will turn red to indicate that monitor mode has been activated.

RESET: Reset the device when a fatal error is encountered.

SAVE [profileName]

Saves the current configuration settings to non-volatile memory on the Eicon 1530. If a SAVE is not done, configuration changes are not kept after the device is reset or after the power is disconnected.

SET PASSWORD { CLIPASS | WEBPASS } password

Defines the password that users need to specify when logging on. The password is case-sensitive, which means 'PASS' and 'pass' are not the same.

Range: 0-11 characters, no spaces. Default: none (no password required to log in).

You can specify a separate password for the CLI and web interfaces.

CLIPASS: Defines a password for accessing the command line interface.

WEBPASS: Defines a password for accessing the web interface.

SET SYSTEM NAME name

Sets the domain name of the Eicon 1530. This is also the address of the home page of the web-based configuration interface. The text '.wanrouter' is appended to the name you enter.

Range: 1-64 characters, no spaces. Default: eicon1530 ('eicon1530.wanrouter').

SHOW COMMAND [ALL]

Displays a list of commands available in the current context.

All commands will be shown if ALL is specified.

SHOW LED STATUS

Displays the current status of the Eicon 1530 indicator lights.

SHOW SYSTEM STATUS

Displays system information such as firmware version.

SHOW VERSION

Displays the firmware version of your device.

SHOW ICMP STATISTICS

Displays ICMP statistics.

**ENABLE REMOTE
DISABLE REMOTE**

When enabled, allows remote computers to connect to the Eicon 1530 WAN Router and access its configuration interfaces. A remote computer is considered to be any computer that is not on the local LAN. It is strongly recommended that you define a system password if you enable this option.

Default: Disabled.

Time and Date Commands

SET TIME hh:mm[:ss]

Sets the internal system clock.

hh: Hours. Range: 0-23.

mm: Minutes. Range: 00-59.

ss: Seconds. Range: 00-59.

SET DATE [yy]yy-mm-dd

Sets the internal system date, in yyyy-mm-dd format.

dd: Day. Range: 1-31.

mm: Month. Range: 1-12.

[yy]yy: Year. The year can be entered as either two or four digits. A two-digit year less than 80 is assumed to be after the year 2000.

SHOW DATE SHOW TIME

Displays the current system date and time.

Log Commands

SET LOG FILTER {TRACE | DEBUG | INFO | SECURITY | WARNING }

Defines the kind of information that will be written to the Eicon 1530 event log. See SHOW LOG for a description of the information written to the log by each setting.

ENABLE LOG MODULE {taskName | ALL} DISABLE LOG MODULE {taskName | ALL}

Enables/disables the inclusion of firmware module messages in the log file. Each firmware module issues status messages during the course of its operations. Use this command to set which messages will be displayed from the log when you issue the SHOW LOG command.

taskName: Use module names as shown in SHOW LOG. For example: DHCP, DNS, PPP, IP, IPPP.

ALL: Affects all module messages.

ENABLE LOG OUTPUT {SCREEN | REMOTE hostAddr}

Sends event log information to the specified device.

SCREEN: Every time an event is added to the log, it is also displayed on the local screen.

REMOTE: Every time an event occurs, a message is sent to the remote device. 'hostAddr' is the IP address of the remote device.

DISABLE LOG OUTPUT {SCREEN | REMOTE}

Disables the output of event log messages to the specified device.

SCREEN: Disable output of event log messages to the screen.

REMOTE: Disable sending of event log messages to the remote device.

SHOW LOG [STATUS]

Displays the event log. If STATUS is specified, this command only displays status information.

Mail Trace Commands

SHOW MAIL TRACE [control]

Displays a mail trace.

control: [buf_size[,entry_size[,filter]]] -p -s -r

buf_size: Size of trace buffer in bytes (hexadecimal).

entry_size: Maximum size of each element to include.

filter: Type of filter.

- p: Stop/pause trace.

- s: Restart trace from paused state.

- r: Reset (clear) trace buffer.

nothing: auto-pause the mail trace and read current contents.

STOP MAIL TRACE

Stops an active mail trace.

Profile Commands

ADD PROFILE { PPP | X25 | FRELAY } name

Creates a new profile.

PPP: Creates a new profile using PPP over the VHSI port.

X25: Creates a new profile using X.25 over the VHSI port.

FRELAY: Creates a new profile using Frame Relay over the VHSI port.

name: Name for this profile.

Note: *With X.25 or Frame Relay, you can create up to eight profiles. For PPP, you can create only one profile.*

DELETE PROFILE name

Deletes the specified profile.

DIAL

Dials out using the current profile.

HANGUP

Hangs up the connection established by the current profile.

SET PROFILE NAME name

Changes the name of the current profile. The name must not contain spaces.

ENABLE PROFILE DISABLE PROFILE

Enables/disables the current profile.

SHOW PROFILE [ALL]

Displays the configuration settings for the specified profile, or displays the configuration settings for all profiles if ALL is specified. In 'General' context, it always displays the current state for all profiles.

Context Commands

PROFILE [profileName]

Changes the active context to the specified profile. If no name is specified, you are placed in the General context. The exception to this is if you are in the Filter context, you are returned to the profile you came from.

LAN

Changes the current context to the predefined LAN profile.

VHSI

Changes the current context to the predefined VHSI profile.

DHCP Commands

SET DHCP TYPE { SERVER | NONE | RELAY }

Sets the type of DHCP services the Eicon 1530 should offer. By default, DHCP services are active.

NONE: No DHCP services are supplied, and DHCP requests are ignored.

SERVER: The Eicon 1530 will act as a DHCP server and will assign IP addresses in response to DHCP requests by network devices.

RELAY: The Eicon 1530 will relay DHCP requests to a separate DHCP server. Use SET DHCP SERVERADDR to define the IP address of the DHCP server where requests should be forwarded.

SHOW DHCP STATUS

Displays the DHCP status along with a list of IP addresses that are currently defined.

SET DHCP IPRANGE startIpaddress range

Defines the pool of addresses used to assign dynamic addresses when the Eicon 1530 is operating as a DHCP server.

startIpaddress: Starting address for the pool. This address must be on the same network as the LAN IP address. Default: 192.168.1.2

range: Number of addresses in the pool. Range: 1-50. Default: 50.

SET DHCP LEASEDURATION duration MINS | HOURS | DAYS

Defines the length of time a client address (assigned by the Eicon 1530) is valid.

Range: 30 minutes to 30 days.

Default: 1 hour.

SET DHCP DNS { PRIMARY | SECONDARY } DNSAddr

Defines the IP address of the primary and secondary DNS servers returned to DHCP clients, when the DHCP server is enabled.

PRIMARY: Primary DNS server.

SECONDARY: Secondary DNS server.

DNSAddr: IP address of the DNS server.

Default: 192.168.1.1 (same as default IP address for the Eicon 1530).

SET DHCP WINS { PRIMARY | SECONDARY } WINAddr

Defines the IP address of the primary and secondary WINS servers returned to DHCP clients, when the DHCP server is enabled.

PRIMARY: The IP address that follows is for the primary WINS server.

SECONDARY: The IP address that follows is for the secondary WINS server.

WINSAddr: IP address of the WINS server being defined.

SET DHCP DOMAIN domain

Defines the domain name returned in response to a DHCP request, when the DHCP server is enabled.

Range: 0-31 characters, no spaces.

SHOW DHCP CONFIGURATION

Displays the setting of all DHCP related parameters.

SET DHCP SERVERADDR { PRIMARY | SECONDARY } DHCPAddr

Defines the address of the DHCP servers where DHCP requests are to be forwarded, when DHCP relay is enabled.

Primary: The IP address that follows is for the primary DHCP server.

Secondary: The IP address that follows is for the secondary DHCP server.

DHCPAddr: IP address of the DHCP server.

SET DHCP MAXHOPS numHops

When a DHCP request is received with a hop count greater than the number specified, the request is discarded. Only valid when DHCP is set to relay.

numHops: Maximum hop count supported for DHCP relay requests.

Range: 1-16.

Default: 4.

SET DHCP DELAY seconds

Defines how long to wait before relaying a DHCP request. Since DHCP requests and responses are broadcast to all stations on a LAN, the Eicon 1530 must check that no other DHCP server has responded to a DHCP request before the request is forwarded to the external network.

seconds: Number of seconds to wait before forwarding a DHCP request.

Range: 1-30 seconds.

Default: 4 seconds.

SHOW DHCP TRACE [memsize [framesize]]

Starts a DHCP trace, or displays an active DHCP trace.

memsize: RAM reserved to store the trace on the Eicon 1530.

Range: 1-63 KB. Default: 16 KB.

framesize: The number of characters to display in each frame.

STOP DHCP TRACE

Stops an active DHCP trace.

ADD DHCP STATICMAP ipAddress MACaddr

Adds a new entry to the STATICMAP table. This table contains the list of static IP address assignments used by the Eicon 1530 when it is acting as a DHCP server. Each entry defines an IP address and IP mask for a specific MAC address.

ipAddress: IP address in dotted-decimal notation.

MACaddr: MAC (Ethernet) address of the target device. This address must be 12 hexadecimal digits separated by colons, commas, or hyphens (11:22:33:44:55:66 for example).

SET DHCP STATICMAP ip macaddr

Modifies the definition of an existing entry in the STATICMAP table. See ADD DHCP STATICMAP for complete details.

ipAddress: IP address in dotted-decimal notation.

MACaddr: MAC (Ethernet) address of the target device. This address must be 12 hexadecimal digits separated by colons, commas, or hyphens (11:22:33:44:55:66 for example).

DELETE DHCP STATICMAP ip

Deletes an entry from the STATICMAP table. See ADD DHCP STATICMAP for complete details.

ipAddress: IP address of the entry to delete.

SHOW DHCP STATICMAP

Displays the list of defined static DHCP addresses. See ADD DHCP STATICMAP for complete details.

ENABLE DHCP STATICMAP ip DISABLE DHCP STATICMAP ip

Enables/disables support for static address assignment when the DHCP server is enabled. See ADD DHCP STATICMAP for complete details.

Direct Commands

SET DIRECT XT1 delay

Defines the RI(on) -> DTR(on) delay.

Range: 0-9999 milliseconds.

Default: 0.

SET DIRECT XT2 delay

Defines the DSR(on) -> RTS(on) delay.

Range: 0-9999 milliseconds.

Default: 0.

SET DIRECT XT9 delay

Defines the DSR debouncing delay.

Range: 0-999 milliseconds.

Default: 100.

SET DIRECT XT10 delay

Defines the maximum delay for establishing a connection.

Range: 15000-65000 milliseconds.

Default: 15000.

SET DIRECT XT12 {NORMAL | IGNORE }

Defines the DSR mode as Normal or Ignore. Default: Normal.

SHOW DIRECT CONFIGURATION

Displays the configuration settings for the direct dialer.

HAYES Commands

ENABLE HAYES ANSWER DISABLE HAYES ANSWER

Enables/disables answering of incoming calls by the modem (DCE). When enabled, the modem will automatically answer incoming calls.

ENABLE HAYES RETRY DISABLE HAYES RETRY

Specifies if the modem should redial if a primary number is busy or otherwise does not respond. If enabled, the secondary number, if defined, will be redialed. If the secondary number is not defined, the primary number will be redialed

SET HAYES DATABITS DataBits

Defines the number of bits used to represent a character. Set this parameter to the same value as on the modem connected to the port. This parameter allows for call setup commands to be issued before a connection is established with an external modem.

Possible values: 7 or 8.

Default: 8.

SET HAYES SPEED speed

Defines the maximum rate in bits per second (bps) at which the dialer, while in command mode, communicates with the modem connected to the port. This allows call setup commands to be issued before a connection is established with an external modem.

Possible values for 'speed': 1200, 2400, 4800, 7200, 9600, 12000, 14400, 19200, 38400, 57600, 115200, 230400

Default: 115200.

SET HAYES PARITY { NONE | ODD | EVEN }

Defines the method of parity error checking used. Both ends of the connection must be set to the same value. This allows call setup commands to be issued before a connection is established with an external modem.

Possible values: None, Odd, Even.

Default: None.

SET HAYES NUMBER { PRIMARY | SECONDARY } number

Defines the phone numbers to dial. The primary number is dialed first. If the primary number is busy or otherwise non-responsive, the secondary number is then dialed. If no secondary number is defined, the primary number is used again.

PRIMARY: The first number to dial.

SECONDARY: The number to dial if the primary is non-responsive.

number: The characters 'AT' followed by a tone or pulse dial indicator (DT or DP), then the telephone number. The AT prefix is a Hayes-standard way of communicating with a modem. For example, ATDT 555-5555 dials the number 555-5555 using a tone dial. ATDP 555-5555 dials the same number using a pulse dial.

SET HAYES CONNDELAY ConnectionEstablishment

Defines the maximum delay permitted between dialing a number and achieving a successful connection. This delay includes the dialing and handshake time between external modems. If this timer is exceeded, the call is abandoned.

Range: 15-65 seconds.

Default: 30.

SET HAYES RETRY retryLimit [retryDelay]

Defines the dial retry settings.

retryLimit: Maximum number of dialing attempts to be made when a busy or unresponsive phone number is encountered. If a secondary number is defined, the dialer will alternate between the primary and secondary numbers until a call is successfully completed or until the retry limit is reached. Each time the primary or secondary number is dialed counts as a retry attempt. For example, specifying 6 allows the primary and the secondary number to be dialed a maximum of three times each. Range: 1-9. Default: 4.

retryDelay: Delay before redialing.

Range: 0-65 seconds. Default: 5.

SET HAYES RIDTR RidtrDelay

Defines the amount of time permitted between receipt of a ring signal detection and the issuance of Data Terminal Ready (DTR) ON. If this delay is exceeded, the call is abandoned. This value must not exceed the value for SET HAYES RING.

Range: 0-30000 milliseconds. Default: 1000.

SET HAYES HANGUP HangupDelay

Defines the amount of time after the line is disconnected before a new command can be issued. This is used to give the modem enough time to prepare to accept other commands.

Range: 0-65 seconds.

Default: 2.

SET HAYES DSRLOSS DSRlossDelay

Defines how long Data Set Ready (DSR) must be lost to determine that there has been a valid loss of carrier, not just a temporary fluctuation. A valid loss of DSR usually means the modem will hang up.

Range: 0-10000 milliseconds.

Default: 1500.

SET HAYES RING RingDelay

Defines the permitted delay between rings. If this timer is exceeded, it is assumed that the caller has hung up.

Range: 1-9000 milliseconds.

Default: 5000.

SET HAYES TRANSITION TransitionDelay

Defines the maximum delay for Data Set Ready (DSR) to be set to OFF after Data Terminal Ready (DTR) is set to OFF. Normally DTR is set to OFF upon a disconnection request.

Range: 0-65 milliseconds.

Default: 2.

SET HAYES OFFHOOK OffHookDelay

Defines the delay between switching from asynchronous to synchronous mode. When this timer is exceeded the modem is placed off-hook.

Range: 0-4000 milliseconds.

Default: 2000.

SHOW HAYES CONFIGURATION

Displays the configuration settings for the Hayes dialer.

V25BIS Commands

ENABLE V25BIS ANSWER DISABLE V25BIS ANSWER

Enables/disables answering of incoming calls by the modem (DCE) connected the port. When enabled, the modem will automatically answer incoming calls.

SET V25BIS NUMBER { PRIMARY | SECONDARY } Number

Defines the phone numbers to dial. The primary number is dialed first. If the primary is busy or otherwise non-responsive, the secondary number is dialed. If no secondary number is defined, the primary number is used again.

PRIMARY: The first number to dial.

SECONDARY: The number to dial if the primary is non-responsive.

number: the characters 'CR' followed by a prefix and the telephone number. The choice of prefix depends on the operation of the local Data Circuit-terminating Equipment (DCE). Normally, the N option is used. Note that the V.25bis DCE will not dial if one of these prefixes is not properly chosen. The following prefixes are available:

N: The primary telephone number for the modem to dial.

I: The primary number provided with an identification number.

S: The memory address to which the modem should refer.

Example: SET V25BIS NUMBER PRIMARY CRN5551234.

SET V25BIS CONNDELAY ConnectionEstablishment

Defines the maximum delay permitted between dialing a number and a achieving a successful connection. This delay includes the dialing and handshake time between external modems. If this timer is exceeded, the call is abandoned.

Range: 15-65 seconds.

Default: 30.

ENABLE V25BIS RETRY DISABLE V25BIS RETRY

Enables/disables the modem to redial, if the primary number is busy or otherwise does not respond. If you enable this option, the secondary number, if defined, will be redialed.

If the secondary number is not defined, the primary number will be redialed.

Default: Enabled.

SET V25BIS RETRY RetryLimit [RetryDelay]

Defines the dial retry settings.

RetryDelay: Delay before redialing.

Range: 0-65 seconds. Default: 5

SET V25BIS RIDTR RidtrDelay

Defines the amount of time between receipt of ring signal detection and the issuance of Data Terminal Ready (DTR) on. If this delay is exceeded, the call is abandoned. This delay must not exceed the value for SET V25BIS RING.

Range: 0-30000 milliseconds. Default: 1000.

SET V25BIS HANGUP HangupDelay

Defines the amount of time after the line is disconnected before a new command can be issued. This is used to give the modem enough time to prepare to accept other commands.

Range: 0-65 seconds.

Default: 2.

SET V25BIS DSRLOSS DSRlossDelay

Defines how long Data Set Ready (DSR) must be lost to determine that there has been a valid loss of carrier, not just a temporary fluctuation. A valid loss of DSR usually means the modem will hang up.

Range: 0-10000 milliseconds.

Default: 1500.

SET V25BIS RING RingDelay

Defines the permitted delay between rings. If this timer is exceeded, it is assumed that the caller has hung up.

Range: 1-9000 milliseconds.

Default: 5000.

SET V25BIS TRANSITION TransitionDelay

Defines the maximum delay for Data Set Ready (DSR) to be set to OFF after Data Terminal Ready (DTR) is set to OFF. Normally DTR is set to OFF upon a disconnection request.

Range: 0-65 seconds.

Default: 2.

SET V25BIS OFFHOOK OffHookDelay

Defines the delay before going into data transfer mode.

Range: 0-4000 milliseconds.

Default: 2000.

SET V25BIS CTSON ProgMessDelay

Defines the delay between sending a command message to the V.25bis modem and its acceptance. If this timer is exceeded then the command message is returned with an error code.

Range: 200-4000 milliseconds.

Default: 200.

SHOW V25BIS CONFIGURATION

Displays the configuration settings for the V.25BIS dialer.

DNS DOMAIN Commands

SET DNS DOMAIN domain[,domain[,...]]

When DNS relay is enabled, each DNS request is checked against this parameter. If they match, a connection defined by this profile is established, and the request is forwarded.

Range: 0-32 characters, or use * to match any name.

SET DNS ADDRESS { PRIMARY | SECONDARY } dnsaddr

Defines the address of the DNS server where DNS requests are to be sent, when DNS Relay is enabled.

PRIMARY: First DNS server where requests are to be sent.

SECONDARY: Second DNS server (used when the PRIMARY does not reply).

dnsaddr: IP address of the server.

ENABLE DNS RELAY DISABLE DNS RELAY

When enabled, all DNS requests are forwarded to a remote DNS server. This is done by matching the requested domain against the domain name assigned to each profile. If a match is found, the profile is connected and the DNS request is forwarded. Default: Enabled.

SHOW DNS CONFIGURATION

Displays all DNS configuration settings.

ETHERNET Commands

SET ETHERNET ADDRESS hexString

Overrides and specifies the Ethernet (MAC) address of the Eicon 1530.

This address must be 12 hexadecimal digits separated by colons, commas, or hyphens (11:22:33:44:55:66 for example).

SHOW ETHERNET STATISTICS

Displays Ethernet statistics.

SHOW ETHERNET ADDRESS

Displays the Ethernet address of the Eicon 1530. You must be in the LAN profile to issue this command.

SHOW ETHERNET TRACE [memsize [framesize]]

Starts an Ethernet trace, or displays an active Ethernet trace.

memsize: RAM reserved to store the trace on the Eicon 1530. Range: 1-63 KB. Default: 16 KB.

framesize: Number of characters to show for each frame.

STOP ETHERNET TRACE

Stops an active Ethernet trace.

Frame Relay Commands

ENABLE FRELAY COMPRESSION DISABLE FRELAY COMPRESSION

Enables/disables compression when Frame Relay is used.

SET FRELAY CIR bitspersecond

Defines the Committed Information Rate (CIR) in bits per second. The CIR is the rate at which the network transfers information under normal conditions. The service provider typically sets pricing based on the CIR (including other criteria) with rate guarantees.

Range: 2400-204800.

SET PROFILE DLCI dlcinumber

Defines the DLCI number for the current profile.

A DLCI is the Frame Relay equivalent of a hardware address, associated with an established Permanent Virtual Circuit (PVC).

Range: 16-1007.

SET FRELAY DLCI oldNum newNum

Modifies a Data Link Connection Identifier (DLCI). A DLCI is the Frame Relay equivalent of a hardware address, associated with an established Permanent Virtual Circuit (PVC).

oldNum: The existing DLCI to be modified.

newNum: A new DLCI number to be set.

Range: 16-1007.

SET DLCI WINDOWSIZE dlcNum winSize

Defines the Frame Relay window size for the specified DLCI.

dlcNum: The existing static DLCI number.

Range: 16-1007.

winSize: The window size to be set for this DLCI.

Range: 1-255. Default: 2.

SET FRELAY DLCIMODE { DYNAMIC | STATIC }

Defines the DLCI mode.

DYNAMIC: Enables dynamic configuration of new DLCIs for this connection. Dynamic DLCI (also referred to as \"DLCI discovery\") eliminates the need for static configuration of new DLCIs. All previously configured DLCIs for this connection are removed. Dynamic DLCI is performed automatically by the Frame Relay Bearer Service, so you do not have to configure a separate DLCI for each Permanent Virtual Circuit in your Frame Relay network.

STATIC: Enables static configuration of new DLCIs for this connection. In this mode, each DLCI must be defined manually.

SET FRELAY LMIN1 pollycycle

Defines the number of polling cycles before a Full Status Report is requested. A polling cycle is a Status Enquiry and Status message exchange. This setting determines the time the user device takes to recognize a change in status on a DLCI from the Frame Relay network. This may include the addition or deletion of a DLCI by the network.

Range: 1-255.

Default: 6.

SET FRELAY LMIN2 error_threshold

Defines the maximum number of Reliability Errors and/or Protocol Errors that can occur during a sliding Monitored Events Count, before a Frame Relay connection is declared inactive. This parameter should always be less than or equal to the Monitored Events Count.

Range: 1-10.

Default: 3.

The Monitored Events Count is defined by SET FRELAY LMIN3.

SET FRELAY LMIN3 mon_event_count

Defines the Monitored Events Count, which is the number of successful polling cycles required before the Frame Relay port can be declared active. If the port has been declared inactive, the network waits the specified number of monitored events before declaring it active again.

Range: 1-10.

Default: 4.

Note: For a DLCI to be declared inactive, the amount defined for N2 (Reliability Errors and/or Protocol Errors) must be reached within the specified number of monitored events. This prevents transient conditions from declaring a DLCI inactive.

The value for N2 is defined with SET FRELAY LMIN2.

SET FRELAY LMIP1 maxdlci

Defines the maximum number of Permanent Virtual Connections (analogous to X.25 PVCs) that can be active simultaneously. Once allocated, each DLCI can be changed to reflect the DLCI assigned at subscription time. Range: 1-32. Default: 1.

SET FRELAY LMIPROTOCOL { ANNEXA | ANNEXD | AUTOLMI | LMI | NONE }

Defines the Local Management Interface (LMI) protocol supported on the network. LMI is a protocol and associated procedures operating on the local interface between the machine user and the network. LMI provides management of Data Link Connection Identifiers (DLCI), which have their endpoints and bearer capabilities defined at subscription time. Pre-ANSI LMI is older, and ANSI T1.617 Annex D is newer. Networks usually support one or the other.

Default value: Annex D.

ANNEXA: ITU-T Q.933 Annex A

ANNEXD: ANSI T1.617 Annex D Local In-channel Signaling.

AUTOLMI: Automatically detects which LMI protocol is in use, in the following order: Annex D, LMI, Annex A, None.

LMI: Pre-ANSI LMI protocol.

NONE: No LMI protocol selected. If LMI is set to none, you are not required to configure the settings LMIN1, LMIN2, LMIN3, and LMIT1.

SET FRELAY LMIT1 { 5 | 10 | 15 | 20 | 25 | 30 }

Defines how frequently the Eicon 1530 should initiate a Status Enquiry message. This timer must be set to less than the timer used by the Frame Relay Network to verify that the Eicon 1530 is sending Status Enquiry messages. To determine the Frame Relay Network timer value, contact your network administrator.

Possible values: 5, 10, 15, 20, 25, 30 (seconds).

Default value: Every 10 seconds.

SET FRELAY N1 fieldsize

Defines the maximum number of bytes of user data that can be contained in a Frame Relay frame.

Range: 19-4096.

Default value: 1514.

SET FRELAY WINDOWSIZE k

Defines the Frame Relay window size for all discovered DLCIs on a given Frame Relay connection, which determines the number of packets that can be sent before waiting for an acknowledgment. Only applicable if Dynamic DLCI is enabled. Used for transmission buffer control.

Range: 1-255.

Default: 2.

You can enable Dynamic DLCI using SET FRELAY DLCIMODE DYNAMIC.

SHOW FRELAY CONFIGURATION

Displays Frame Relay configuration settings.

SHOW FRELAY STATISTICS

Displays Frame Relay statistics.

SHOW FRELAY STATUS

Displays Frame Relay status.

SHOW FRELAY TRACE [mask [memsize [framesize]]]

Starts a Frame Relay trace, or displays an active trace.

mask:

01 Data frame

02 LMI frame

memsize: The amount of RAM reserved to store the trace on the Eicon 1530 WAN Router.

Range: 1-63 KB. Default: 16 KB

framesize: Number of characters to show for each frame.

Range: 64-1024 KB. Default: 128 KB

Note: If entered 0 or nothing the default value will be used.

STOP FRELAY TRACE

Stops an active Frame Relay trace.

HDLC Commands

ENABLE HDLC FRMR DISABLE HDLC FRMR

Enables/disables rejection of RR/RNR/REJ frames that have their poll bit set to 0. Certain networks use the HDLC poll bit in a non-standard manner and require special handling of the three frame types:

- RR (receiver ready) frames
- RNR (receiver not ready) frames
- REJ (reject) frames

Normally, when any of these three frames are received as commands with the poll bit set to 0, they are rejected. Non-standard networks may not want these frames to be rejected.

ENABLE HDLC X32DIALOUT DISABLE HDLC X32DIALOUT

Enables/disables X.32 dialout. Default: Disabled.

SET HDLC T1 checkPointTimer

Defines the Check Point Timer, which specifies how long to wait for a response from the remote device before an attempt is made to determine its status. This parameter should be set to slightly greater than twice the transmission time of the longest frame. Range: 200-9999 milliseconds.

Default: 2900.

SET HDLC T2 AckDelayTimer

Defines the Ack Delay Timer. To optimize communications efficiency, acknowledgments can be piggy-backed onto outgoing frames rather than being sent out on their own. The Ack Delay Timer defines the length of time the device should wait for an outgoing information frame, before sending the acknowledgement by itself. This setting (T2) should always be much less than the Check Point Timer (T1); otherwise, the remote device may time out and try to recover before the acknowledgment is received.

Range: 0-25000.

Default: 200.

SET HDLC T3 IdleProbeTimer

Defines the Idle Probe Timer, which specifies how long the link should remain idle before the Eicon 1530 sends an RR (Receiver Ready) frame, with a P bit set, to the remote device. This is done in order to determine its status. The remote device, if still functioning, will respond using an RR frame with the F bit set.

Range: 0-100000 milliseconds.

Default: 15000.

SET HDLC N1 NumBytes

Defines the maximum frame size. This parameter can generally be determined by adding 16 to the Maximum Packet Size, or adding 5 if the Maximum Packet Size is great than 256. However, if your Maximum Packet Size is less than 256, and you are using the Fast Select feature, then find the size, in bytes, of the following parameters and add them together: Direct Header (1), HDLC Packet Header (2, or 3 for extended sequence), X.25 Packet Header (3, or 4 for extended sequence), DTE Address Length (1), DTE Address (0 to 15), Facility Length (1), Facilities (0-63), User Data (0-16), Fast Select Client Data (0-128). If the exact value cannot be calculated, this parameter can be set to a higher value than needed. For example, if set to 261, it will accommodate any packet size up to 256 bytes.

Connections using the X.25 protocol use the HDLC protocol at a lower level. As a result, the valid ranges and default values may vary as follows:

HDLC only: Range: 1-8194. Default: 1504.

X.25 over HDLC: Range: (X.25 Max Packet Size + 5 or 16) - 1029. Default: 261.

SET HDLC N2 MaxRetryCount

Defines the Maximum Retry Count, which is the limit to the number of retries made when a particular frame meets with repeated negative acknowledgments from the remote device.

Range: 1-99. Default: 10.

SET HDLC K MaxWindowSize

Defines the Maximum Window Size, which is the number of frames that are to be sent before the Eicon 1530 waits for an acknowledgment from the remote device. In certain situations, you may wish to define a large window size (with satellite networks that have significant transmission delays, for example). The maximum window size can never be exceeded, and it must match on both sides of the link.

Range: 1-7, or 1-127 if Extended Sequence Mode is enabled.

Default: 7.

Extended Sequence Mode is defined with SET HDLC MODE.

SET HDLC MODE { ACTIVE | PASSIVE } { NORMAL | EXTENDED }

Defines how the HDLC Link setup procedure is handled. Applies only if a DTE port has been configured. Default: Active Normal.

ACTIVE: The Eicon 1530 will initiate the setup procedure. This option is generally used with DTE addressing.

PASSIVE: The Eicon 1530 will wait for the remote device to initiate the setup procedure.

NORMAL: Sets the Maximum Window Size range to 1-7 (for most networks).

EXTENDED: Sets the Maximum Window Size to 1-127 (for networks supporting the Extended Sequence Mode).

Maximum Window Size is defined with SET HDLC K.

SET HDLC X3SERVICE { TRANSPAC | CCITT | ERIPAX | NONE } [xid[sig]]

Variations of the HDLC protocol expand upon the protocol to provide additional information to the host and client systems. Default: NONE.

NONE: Standard implementation of HDLC.

ERIPAX: A variation of HDLC made to work on Ericsson private networks. The ERIPAX XID helps identify you to other network clients even when you are using a dial-up line.

CCITT: A CCITT standard variation of the HDLC protocol providing parameters to help identify you to other network clients even when you are using a dial-up line.

TRANSPAC: A variation of HDLC made to work on the Transpac network in France. The Transpac ID and SID parameters identify you to other network clients even when you are using a dial-up line.

SHOW HDLC CONFIGURATION

Displays HDLC configuration settings.

SHOW HDLC STATISTICS

Displays HDLC statistics.

SHOW HDLC STATUS

Displays the current HDLC status.

SHOW HDLC TRACE [mask [memsize [framesize]]]

Starts an HDLC trace, or displays an active trace.

mask: 01 I-frames

02 RR frames

04 RNR, REJ frames

08 FRMR, SABM, DISC, UA frames

10 All other frames

memsize: The amount of RAM reserved to store the trace on the Eicon 1530 WAN Router.

Range: 1-63 KB. Default: 16 KB

framesize: Number of characters to show for each frame.

Range: 64-1024 KB. Default: 64 KB

Note: *Note: If entered 0 or nothing the default value will be used.*

STOP HDLC TRACE

Stops an active HDLC trace.

IP Route Commands

ADD IP ROUTE Ipaddr maskLen[:metric] [gwAddr]

Adds a static IP route.

Ipaddr: Defines the IP address of datagrams that should be routed.

maskLen: Defines the number of bits that are checked when comparing the address of a datagram to that specified by the Ipaddr parameter. Range: 0-32.

metric: Defines the weight of a route. If two identical routes exist, the route with the lower metric is used. Range: 1-15. Specify 16 to indicate that the route should never be used. Default: 1.

gwAddr: Defines the IP address of the device where datagrams are to be forwarded, if a match is found.

DELETE IP ROUTE Ipaddr

Deletes the specified IP route.

SET IP ROUTE Ipaddr metric [gwAddr]

Modifies the metric and gateway address for an existing IP route.

See ADD IP ROUTE for more information.

Ipaddr: IP address of the existing route.

metric: Determine the weight of a route.
Range: 1-16. Unchanged if zero (0) specified.

gwAddr: New gateway address.

SHOW IP ROUTE

Displays all defined static and dynamic IP routes.

UDP and TCP Commands

SHOW UDP STATISTICS

Displays UDP statistics.

SHOW UDP TRACE [memsize [framesize]]

Starts a UDP trace, or displays an active UDP trace.

memsize: RAM reserved to store the trace on the Eicon 1530.

Range: 1-63 KB.

Default: 16 KB.

framesize: Number of characters to show for each frame.

Range: 64-1024 KB.

Default: 64 KB.

STOP UDP TRACE

Stops an active UDP trace.

SHOW TCP STATISTICS

Displays TCP statistics.

SHOW TCP TRACE [memsize [framesize]]

Starts or displays a TCP trace.

memsize: RAM reserved to store the trace on the Eicon 1530. Range: 1-63 KB. Default: 16 KB.

framesize: Number of characters to show for each frame.

STOP TCP TRACE

Stops an active TCP trace.

IP Filter Commands

NEXT

Makes the next IP filter the current context. You can then edit the filter.

PREVIOUS

Makes the previous IP filter the current context. You can then edit the filter.

SET IP FILTER filterNum

Makes the specified filter the active context. You can then edit the filter.

filterNum: Number of the IP filter.

SHOW IP FILTER

Display all IP filters for the current profile. In a Filter context, displays only those filters that are defined for the current filter.

SET TYPE { ALL | UDP | TCP | SYN | ANYICMP | ICMP [type] }

Defines the type of data to which this filter applies.

ALL: Applies to all data.

UDP: Applies to UDP data only.

TCP: Applies to TCP data only (default).

SYN: Applies to TCP connection (SYN) data only.

ANYICMP: Applies to all ICMP data.

ICMP: Applies to specific ICMP data (as set by type)

type: ICMP type to filter.

ADD IP FILTER FilterNum

Adds a new IP filter to the list at the specified position. You can insert a filter at any point in the list.

filternum: Position where the new filter should be added.

ENABLE FILTER DISABLE FILTER

Enables/disables IP filters. In the Profile context, this applies to all filters defined for the profile. In the Filter context, this applies only to filters defined for the current filter.

DELETE IP FILTER filterNum

Deletes the specified IP filter.

filterNum: Number of the IP filter to delete.

COPY FILTER filterNumber

Copies an existing filter to the current filter. This command is only available in the filter context.

filterNumber: Number of the IP filter to copy.

SET ACTION { DROP | FORWARD | WHENCONNECTED }

Defines the action this filter takes when it encounters data that matches the filter setting.

DROP: Discard the data.

FORWARD: Forward the data to the next filter.

WHENCONNECTED: Forward the data to the next filter, if connected.

SET DIRECTION { IN | OUT | ANY }

Specifies if the filter applies to incoming or outgoing data. Default: ANY (both incoming and outgoing).

IN: Filter applies to incoming data only.

OUT: Filter applies to outgoing data only.

ANY: Filter applies to both incoming and outgoing data.

SET IP SOURCE Ipaddr netMask

Defines the source address and network mask for the filter. Only data which originates from the specified address and network is processed by this filter.

Ipaddr: Source IP address of data to filter.

netMask: Source network mask of data to filter.

SET IP DESTINATION Ipaddr netMask

Defines the destination address and network mask for the filter. Only data which is destined for the specified address and network is processed by this filter.

Ipaddr: Destination IP address of data to filter.

netMask: Destination network mask for data to filter.

SET UDP SOURCE lowPort highPort

Defines the minimum and maximum source UDP ports for which this filter will process data.

lowPort: Minimum UDP port number of data to filter. Range: 0-highPort. Default: 0.

highPort: Maximum UDP port number of data to filter. Range: lowPort-65535. Default: 65535.

SET UDP DESTINATION lowPort highPort

Defines the minimum and maximum destination UDP ports for which this filter will process data.

lowPort: Minimum UDP port number of data to filter. Range: 0-highPort. Default: 0.

highPort: Maximum UDP port number of data to filter. Range: lowPort-65535. Default: 65535.

SET TCP SOURCE lowPort highPort

Defines the minimum and maximum source TCP ports for which this filter will process data.

lowPort: Minimum TCP port number of data to filter. Range: 0-highPort. Default: 0.

highPort: Maximum TCP port number of data to filter. Range: lowPort-65535. Default: 65535.

SET TCP DESTINATION lowPort highPort

Defines the minimum and maximum destination TCP ports for which this filter will process data.

lowPort: Minimum TCP port number of data to filter. Range: 0-highPort. Default: 0.

highPort: Maximum TCP port number of data to filter. Range: lowPort-65535. Default: 65535.

NAT Commands

ENABLE IP NAT **DISABLE IP NAT**

Enables/disables NAT (Network Address Translation) for this profile. With NAT enabled, only one IP address is used when communicating with remote sites via the external network. The real IP addresses of computers on the local LAN are never revealed to remote sites.

Default: Enabled.

SHOW IP NAT

Displays the IP NAT table, which contains the settings for all computers on the internal LAN visible to the external network.

ADD IP NAT { UDP | TCP } port ipaddress

Adds a NAT entry. This allows a computer on the internal LAN to be visible to the external network for a particular protocol. For example, if you want an internal computer to function as an SMTP server (for e-mail), set TCP to port 25 and enter the IP address of the computer that is to function as the server.

UDP: Use the UDP protocol.

TCP: Use the TCP protocol.

port: Port to use.

ipaddress: IP address of the computer on the internal LAN.

DELETE IP NAT { UDP | TCP } port

Deletes the specified entry in the IP NAT table.

UDP: UDP protocol.

TCP: TCP protocol.

port: Port being used.

SET IP NAT { UDP | TCP | DEFAULT } port address

Modifies an existing NAT entry. See ADD IP NAT for information on NAT.

UDP: Use the UDP protocol.

TCP: Use the TCP protocol.

DEFAULT: IP address of the device to where unresolved incoming datagrams should be forwarded.

port: Port to use.

address: IP address of the computer on the internal LAN.

IP Commands

SET IP ADDRESS *Ipaddr*

Defines the IP address for the Eicon 1530 on the Ethernet LAN it creates. By default, this address is set to 192.168.1.1, and you should not change it. However, if you are installing the Eicon 1530 on an existing LAN, you may need to change this value so that it is appropriate for your LAN setup.

SHOW IP ADDRESS

Displays the current IP addresses for the Eicon 1530. The addresses displayed might not be the same as those defined, but rather those as negotiated. For example, if an IP address is set to 0, it is negotiated to a new value when the connection is made. This command only displays the addresses that apply to the current profile, or all addresses if executed from the General context.

SET IP DESCRIPTION *description*

Defines the description for this IP interface (up to 39 alphanumeric characters).

SET IP MASK *Ipaddr*

Defines the subnet mask for the Eicon 1530 on the Ethernet LAN it creates.

Default: 255.255.255.0.

SET IP BACKUP *profilename*

Selects the backup profile to be used when this profile cannot connect. The backup profile is only invoked when the maximum number of connection retries has been exceeded, at which point a profile is set to a 'failed' state. The backup profile (if defined) is then used.

SHOW IP STATISTICS

Displays statistics for the IP protocol.

SHOW IP STATUS

Displays IP status information and all configured IP addresses.

SHOW IP CONFIGURATION

Displays IP configuration settings.

SET IP REMOTE *Ipaddr*

Defines the IP address of the remote device to which this profile connects. Use this only in cases when a static IP address is assigned to the remote site. In most cases, specify 0.0.0.0 to allow dynamic negotiation of the address when the connection is established.

Note: Dynamic negotiation is not supported by the LAN profile.

SET IP SERVICES { ALL | INTELLIGENT | MINIMAL | NONE }

Defines the level of support provided for Microsoft NetBIOS services, which are integrated into Microsoft TCP/IP. NetBIOS is required to support Microsoft Windows Network Neighborhood, the MAP NETWORK option in Windows Explorer, and various DOS-based networking commands (such as net use, net view, and net logon). Default: ALL.

ALL: All NetBIOS traffic is forwarded to the remote site. This may result in substantial connection charges unless you have a flat rate connection, as outgoing calls will be made frequently.

INTELLIGENT: Provides full support for all Network Neighborhood functions, but spoofs unnecessary traffic to reduce usage.

MINIMAL: Reduces NetBIOS traffic to a minimum. Does not support Network Neighborhood functions. However, the MAP NETWORK option in Windows Explorer is supported, along with DOS-based networking commands such as net use, net view, and net logon. This is the most economical solution.

NONE: All NetBIOS traffic is discarded.

ENABLE IP SPOOFING DISABLE IP SPOOFING

Enables/disables spoofing. When enabled, all TCP keep-alive datagrams and all Microsoft Server Message Block datagrams are spoofed. In addition, all NetBIOS over IP name service traffic is dropped.

Default: Enabled.

ENABLE IP BROADCAST DISABLE IP BROADCAST

Enables/disables support for IP broadcasting.

Default: Disabled.

ENABLE IP MULTICAST DISABLE IP MULTICAST

Enables/disables support for IP multicasting. When disabled, IP multicast datagrams are not forwarded from the external network onto the internal Ethernet LAN. To allow computers on the internal LAN to subscribe to services that use IP multicasting as a delivery mechanism, you must enable this option.

Default for internal LAN: Enabled. Default for each profile: Disabled.

ENABLE IP MANUALLDIAL DISABLE IP MANUALLDIAL

Enables/disables manual dialing of this profile. With manual dialing enabled, this profile will NOT be automatically connected when data needs to be sent. Instead, you must manually connect the profile. Use the DIAL command to dial the profile manually.

ENABLE IP UNNUMBERED DISABLE IP UNNUMBERED

Enables/disables IP Unnumbered Mode for this profile. This saves an IP address by using the same IP address for both the external network and internal LAN. This option is valid only if NAT is NOT enabled.

VHSI Port Configuration Commands

SET PORT PROTOCOL {PPP | FRELAY | X25}

Selects the protocol to be used on the VHSI interface.

PPP: Sets the VHSI interface to PPP.

FRELAY: Sets the VHSI interface to Frame Relay.

X25: Sets the VHSI interface to X25.

Note: *Changing the VHSI interface deletes all currently defined profiles.*

SET PORT DIALER {DIRECT | V25BIS | HAYES }

Defines the type of dialer the VHSI port should use when connected to a dial-up line (when SET PORT LINEINTERFACE is set to DIAL).

SET PORT LINEINTERFACE {LEASED | DIAL }

Defines the type of line connected to the VHSI port.

LEASED: The port is connected to a null-modem cable or to a modem that links to a dedicated leased line.

DIAL: The port is connected to a modem that must be dialed in order to make a connection.

SET PORT DUPLEX {FULL | HALF }

Defines the type of device the VHSI port is connected to.

FULL: The port is connected to a full-duplex device. This is the most common case and is usually the choice for an X.25/QLLC connection. HALF: The port is connected to a half-duplex device. This is most often used on an SDLC connection.

SET PORT MULTIDROP {POINTTOPOINT | MULTIPOINT }

Defines the type of line connected to the VHSI port: point-to-point or multi-point.

SET PORT CLOCKING {EXTERNAL | INTERNAL | EXTDPLL | INTDPLL }

Defines how the VHSI port is clocked, which controls synchronization and the rate of data exchange on the line.

EXTERNAL: The port uses the clock supplied by the device it is connected to (DCE) for receiving and transmitting.

INTERNAL: The port generates an internal clock for receiving and transmitting, and outputs this clock on the interface for use by the device it is connected to (DCE).

EXTDPLL: The port employs a DPLL that uses a DCE generated clock at 32 (NRZI) or 16 (FM) times the data rate.

INTDPLL: The port employs a DPLL that uses an internally generated clock at 32 (NRZI) or 16 (FM) times the data rate.

SET PORT ENCODING {NRZ | NRZI | FM0 | FM1 }

Defines the type of data encoding used on the VHSI port. This setting must match that of the remote system.

NRZ: Enable Non Return to Zero encoding. Can be used for internal or external clocking.

NRZI: Enable Non Return to Zero Inverted encoding. Can be used with internal or external clocking, and INT-DPLL (Internal Digital Phase Lock Loop) or EXT-DPLL (External Digital Phase Lock Loop) with a line speed limit of 19,200 bps.

FM0: Enable FM0 (also known as biphase space) encoding. Can only be used with INT-DPLL clocking with a speed limit of 38,400 bps.

FM1: Enable FM1 (also known as biphase mark) encoding. Can only be used with INT-DPLL clocking with a speed limit of 38,400 bps.

SET PORT SPEED Speed

Defines the speed at which the VHSI port operates, in bits per second (bps). Certain restrictions inherent to the network to which the Eicon 1530 is connected can limit throughput. Speeds in excess of 128 kbps are possible on dedicated lines, but public X.25 data networks may be as slow as 2400 bps.

This parameter is used only when SET PORT CLOCKING is set to INTERNAL or INTDPLL. When external clocking is selected, the device providing the clock sets the line speed.

SET PORT INTERFACE {AUTODETECT | RS232 | V35 }

Defines the VHSI port interface. The VHSI interface supports RS-232 (V.24) and V.35. Specify AUTODETECT to have the Eicon 1530 detect the type of interface automatically.

SET PORT XT3 XT3Delay

Defines the DCD(off) -> RTS(on) delay. This is the delay before the remote is allowed to send at the end of reception. This parameter is intended for non-standard physical interfaces, and is for half-duplex lines only.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

SET PORT XT5 TXIdleTimeout

Defines the Tx Idle Timeout. When the transmitter finishes sending a frame, it starts the Tx Idle Timer. If this timer expires before another frame is available for sending, the transmitter is turned off. This parameter is only used in half-duplex mode.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

SET PORT XT6 XT6Maximum

Defines the RTS(on) -> RTS(off) maximum delay. This is the amount of time the transmitter may be active before turning the line around. This parameter is for half-duplex lines only.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

SET PORT XT8 XT8Maximum

Defines the DCD(on) -> DCD(off) maximum delay. This is the maximum length of time the remote device is allowed to transmit data. If this limit is exceeded the line is disconnected. This parameter is only used for half-duplex lines.

Range: 0-9999 milliseconds.

Default: 0 (disabled).

SHOW PORT CONFIGURATION

Displays the configuration settings for the VHSI port.

PPP Commands

ENABLE PPP ENCRYPTED DISABLE PPP ENCRYPTED

Enables/disables encrypted password to be sent for authentication. If enabled, an encrypted password is used. This can only be used if the remote supports CHAP authentication. If disabled, unencrypted password is used and the remote can support either PAP or CHAP authentication.

Default: Disabled.

ENABLE PPP AUTHENT DISABLE PPP AUTHENT

Enables/disables password authentication. When enabled, the Eicon 1530 WAN Router will authenticate the remote, using the username and password (encrypted/unencrypted) received from the remote.

Default: Disabled (Outgoing), Enabled (Incoming).

SET PPP LPASSWORD localPassword

Defines the password used when replying to valid authentication requests.

Range: 0-31 alphanumeric characters (no spaces). Default: eicon.

SET PPP LNAME localName

Defines the name used when replying to valid authentication requests.

Range: 0-31 alphanumeric characters (no spaces). Default: eicon.

SET PPP RNAME remoteName

Defines the name the remote device must supply when authentication is requested by the Eicon 1530.

Range: 0-31 characters, no spaces. Default: eicon.

SET PPP RPASSWORD remotePassword

Defines the password the remote device must supply when authentication is requested by the Eicon 1530.

Range: 0-31 characters, no spaces. Default: eicon.

ENABLE PPP COMPRESSION DISABLE PPP COMPRESSION

Enables/disables PPP compression. When enabled, one of the following standards is automatically negotiated: Ascend, MPPC, MS-STAC, STAC 1, and STAC 3.

Default: Disabled.

ENABLE PPP ECHOREQUEST

DISABLE PPP ECHOREQUEST

Enables/disables the use of PPP echo requests. Some systems do not properly respond to PPP echo requests. To connect to such systems, PPP echo requests should be disabled.

Default: Enabled.

SET PPP IDLETIME interval

Defines the idle timer for this profile, which controls how long a data call should stay connected when no traffic is being sent or received. When the idle timer expires, the call is disconnected.

Range: 10-900 seconds. Specify 0 to disable automatic disconnection.

Default: 120 seconds. This parameter automatically changes to 900 seconds when manual dialing (see page 139) is enabled.

SET PPP MAXRETRY number

Defines the maximum number of connection attempts this profile is allowed to make. When this limit is reached, the profile is placed in the 'failed' state.

To automatically reset the profile, use SET PPP RESTOREDELAY. To reset the profile manually, reset the Eicon 1530.

number: Number of attempts.

Range: 0-250. Default: 25.

SET PPP RESTOREDELAY interval

Defines how long to wait before automatically restoring a profile from "failed" state to "ready".

Range: 1-65535 seconds. Specify 0 to disable automatic restore.

Default: 300 seconds.

A profile fails if a connection cannot be established after the retry limit is reached (see SET PPP MAXRETRY).

SET PPP RETRYDELAY interval

Defines the amount of time in seconds to wait before allowing new attempts to connect. The default and range depend on the country.

Range: 1-1800. Default: 30.

SET PPP PRIORITY interval

When more than one profile attempts to connect using the same link, a profile with the higher priority will disconnect profiles with lower priority. For example, a profile with a priority of 0 will bump a profile with a priority of 2.

Range: 0-5 (0 being the highest).

Default for all profiles: 0.

SHOW PPP CONFIGURATION

Displays the current PPP configuration settings.

SHOW PPP STATISTICS

Displays PPP statistics.

SHOW PPP STATUS

Displays PPP status.

SHOW PPP TRACE [port[,mask] [memsize [framesize]]]

Starts a PPP trace, or displays an active PPP trace.

port: port number.

mask: frame or packet type that are to be traced.

01 = IP, IPCP

08 = BN, BNCP

10 = LCP

20 = PAP

40 = CLP

80 = CHAP

memsize: RAM reserved to store the trace on the Eicon 1530. Range: 1-63 KB. Default: 16 KB.

framesize: Number of characters to display in each frame. Range: 64-1024. Default: 128.

Example: SHOW PPP TRACE 0,10 24 64

STOP PPP TRACE [port]

Stops a PPP trace.

RIP Commands

ENABLE RIP [V1 | V2 | V2COMPATIBLE | MERGE]

Enables/disables support for RIP (Routing Information Protocol). When enabled, routing information will be exchanged with other devices.

V1: Supports RIP version 1.

V2: Supports RIP version 2.

V2COMPATIBLE: Supports RIP version 2 that is version 1 compatible (implies broadcasting RIP-2).

MERGE: Merge equivalent routes.

DISABLE RIP [MERGE]

DISABLE RIP disables all RIP services.

DISABLE RIP MERGE disables the merging of similar routes only.

SHOW RIP CONFIGURATION

Displays RIP configuration settings.

SHOW RIP STATISTICS

Displays RIP statistics.

SET RIP UPDATE period

Defines the amount of time to wait (in seconds) between sending updates to peers.

Default: 30 seconds.

SET RIP PASSWORD { IN | OUT } password

Defines a password that must be used by other devices before routing information is accepted or sent out.

IN: Password is required before routing information is accepted.

OUT: Password is required before replying to routing requests.

password: Password that must be supplied by the remote. No spaces allowed.

SET RIP POLICY { SILENT | PERIODIC | IFCONNECTED | SNAPSHOT { SERVER | CLIENT } }

Defines how route updates, requests, and responses are managed.

SILENT: RIP accepts updates from other systems, but will not respond to requests or send updates.

PERIODIC: RIP sends a complete update to all neighbors and replies to all incoming requests (LAN only). This is how RIP operates normally.

IFCONNECTED: Allow RIP updates only if connected.

ADD RIP REJECT ipaddr
DELETE RIP REJECT ipaddr

ADD RIP REJECT adds an IP address to the RIP Reject table.

DELETE RIP REJECT removes an entry from the table.

RIP ignores all routing information received from a peer that has an IP address listed in the RIP Reject table.

SHOW RIP REJECT

Displays the RIP reject table. RIP ignores all routing information received from a peer that has an IP address listed in the RIP Reject table.

SNMP Commands

SET SNMP NAME name

Defines a name for the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 1-29 characters.

Default: Eicon 1530 WAN Router.

SET SNMP DESCRIPTION name

Defines a description for the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 0-39 characters.

SET SNMP CONTACT name

Defines the e-mail address of the person responsible for the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 0-39 characters.

SET SNMP LOCATION name

Describes the physical location of the Eicon 1530. This information can be retrieved by SNMP agents.

Range: 0-29 characters.

SET SNMP COMMUNITY name

Defines the SNMP community name for the Eicon 1530. The community name acts as a password controlling SNMP read and write access to all Eicon 1530 configuration settings.

Range: 0-31 characters, no spaces.

SET SNMP TRAPADDR ipaddr

Defines the IP address, in dotted-decimal format, of the remote station where LAN Manager will send SNMP traps. All standard MIB II traps are supported.

TFTP Commands

ENABLE TFTP SERVER **DISABLE TFTP SERVER**

Enables/disables TFTP (Trivial File Transfer Protocol). When enabled, the Eicon 1530 acts as a TFTP server and can respond to upload or download requests from TFTP clients.

Default: Disabled.

GET TFTP FILE ipaddress localfn remotefn **PUT TFTP FILE ipaddress localfn remotefn**

GET TFTP FILE gets a file from the Eicon 1530 using TFTP.

PUT TFTP FILE sends a file to the Eicon 15300 using TFTP.

ipaddress: IP address of the remote system.

localfn: Name of the file on the local system.

remotefn: Name of the file on the remote system.

Time Protocol Commands

SET TIMEPROTOCOL SERVER timeServer

Defines the IP address of the time server the Eicon 1530 should use when automatically updating its internal clock. The address 255.255.255.255 will broadcast the request to all stations on the network.

SET TIMEPROTOCOL ZONE timeZoneDiff

Defines the difference between your time zone and Greenwich Mean Time (GMT) in hours.

Range: -12 to 12. Default: 0.

ENABLE TIMEPROTOCOL DISABLE TIMEPROTOCOL

Enables/disables the use of the time protocol. When enabled, the Eicon 1530 will periodically contact a time server in order to set its internal clock.

Default: Enabled.

SHOW TIMEPROTOCOL CONFIGURATION

Displays the time protocol configuration settings.

X.25 Commands

SET X25 VERSION {1984 | 1988}

Defines the version of the X.25 protocol to use.

1984: ITU recommendation 1984.

1988: ITU recommendation 1988.

ENABLE X25 TOANPI DISABLE X25 TOANPI

Enables/disables support for TOA/NPI addressing. This parameter only applies if the X.25 version is set to 1988.

X.25 version is defined with SET X25 VERSION.

SET X25 ADDRESS localX25addr

Defines the X.25 DTE address assigned to the Eicon 1530.

Range: 0-15 digits.

SET X25 REMOTE x25addr

Defines the remote X.25 address the Eicon 1530 calls to establish the connection.

Range: 0-15 digits.

When the X.25 connection type is set to permanent (see SET X25 CONNTYPE), this parameter defines the VC number used.

SET X25 COMPRESSION {NONE | EICON | BAY | CISCO }

Defines the type of compression used for X.25 traffic.

NONE: No compression.

EICON: Compression negotiation: CCP (Compression Control Protocol). Compression algorithm: LZS-STAC. Check mode: LCB, Sequence number, and extended mode. Not compatible with Cisco routers.

BAY: Compression negotiation: WCP. Compression algorithm: Magnalink.

Check mode: LCB.

Dictionary size: 8K or 32K.

CISCO: Compression negotiation: None. Compression algorithm: LZS-STAC. Not compatible with Eicon mode.

SET X25 CONNTYPE {TWOWAY | INCOMING | PERMANENT }

Defines the type of connection that will be established with the remote device.

TWOWAY: Both the Eicon 1530 and remote device can initiate the connection.

INCOMING The remote device must initiate the connection.

PERMANENT: A PVC is permanently established between two destinations. No call setup is required.

SET PROFILE PVC num

Defines which PVC (Permanent Virtual Circuits) to be used. This is used only when you select PERMANENT connection type. (See SET X25 CONNTYPE)

Range: 1-32. Default: First unused PVC number.

Note: *Note: The maximum value should not be greater than total of PVCs.*

SET X25 NODETYPE { DTE | DCE }

Defines if the Eicon 1530 functions as DTE (Data Terminal Equipment) or DCE (Data-Circuit terminating Equipment). Consult your network subscription for the proper setting.

Default: DTE.

DTE: Use when connected to an X.25 network, or to another computer configured as DCE.

DCE: Use when connected to another computer configured as DTE.

SET X25 CUD callUserData

Specifies the call user data the device will include when establishing an X.25 call.

callUserData: Encode call user data as hexadecimal digits separated by commas, colons, or hyphens. Maximum length is 16 bytes. For example: 42,07,07

SET X25 FACILITIES hexstring

Sets the X.25 facilities used to establish an X.25 call with this profile.

hexstring: Encode facilities as a hexadecimal string of characters separated by commas, colons, or hyphens. Maximum length is 14 bytes. For example: 42,07,07

ENABLE X25 SEQUENTIAL DISABLE X25 SEQUENTIAL

Enables/disables sequential assignment of virtual circuits. Most X.25 networks assign virtual circuits sequentially. However, some networks, such as British Telecom's Packet Switch Stream, assign virtual circuits non-sequentially using Logical Channel Group numbers. If this is the case, you must define the starting LCN (Logical Channel Number) for each group of virtual circuits (PVC, IVC, TVO, and OVC).

Default: Enabled.

SET X25 PVC number startAddress

Defines settings for PVCs (Permanent Virtual Circuits). A PVC is permanently established between two destinations. No call setup is required.

number: Total number of PVCs set by your X.25 network subscription.

startAddress: The starting LCN (Logical Channel Number) to use for the first PVC. Only valid if the sequential assignment of virtual circuits is enabled.

SET X25 IVC number startAddress

Defines settings for IVCs (Incoming Virtual Circuits). An IVC can only receive calls.

number: Total number of IVCs set by your X.25 network subscription.

startAddress: The starting LCN (Logical Channel Number) to use for the first IVC. This must be greater than the sum of the PVC starting number and the number of PVCs. Only valid if the sequential assignment of virtual circuits is enabled.

SET X25 TVC number startAddress

Defines the settings for TVCs (Two-way Virtual Circuits). A TVC can both make and receive calls.

number: Total number of TVCs set by your X.25 network subscription.

startAddress: The starting LCN (Logical Channel Number) to use for the first TVC. This must be greater than the sum of the IVC starting number and the number of IVCs. This parameter is only valid if the sequential assignment of virtual circuits is enabled.

SET X25 OVC number startAddress

Defines the settings for OVCs (Outgoing-only Virtual Circuits). An OVC can only issue calls and not receive them.

number: Total number of OVCs set by your X.25 network subscription.

startAddress: The starting LCN (Logical Channel Number) to use for the first OVC. This must be greater than the sum of the TVC starting number and the number of TVCs. This parameter is only valid if the sequential assignment of virtual circuits is enabled.

SET X25 WINDOWSIZE default maximum

Defines the default and maximum X.25 window sizes supported for X.25 communications.

default: Default window size. Range: 1-7. Default: 2.

maximum: Maximum window size. Range: Default window size to 7. Default: 7.

Note: *Default window size cannot be greater than Maximum window size.*

SET X25 PACKETFORMAT {BASIC | EXTENDED }

Defines the type of packets supported. Consult your network subscription to see if you can make use of Extended Packet features. This parameter affects Window size.

BASIC: Supports only the standard packets used on all networks.

EXTENDED: Supports the use of extended clearing, call user data, and other features available only on certain networks.

SET X25 PACKETSIZE default maximum

Defines the default and maximum X.25 packet sizes supported for X.25 communications.

default: Default packet size. Range: 64-1024 bytes. Default: 128 bytes.

maximum: Maximum packet size. Range: Default to 1024 bytes. Default: 256 bytes.

Note: *Default packet size cannot be greater than Maximum packet size.*

SET X25 ACKTIMER AckTimer

Defines the Acknowledge timer, which is how long, in milliseconds, the line can remain idle before an RR (Receiver Ready) is sent to the remote. This lets the remote know that the connection is still active. The remote will respond with an RR.

Range: 0-9999.

Default: 20.

SET X25 IDLETIMER seconds

Defines the amount of time a dial-up connection can be inactive before the link is brought down.

Range: 1-999 seconds. Specify 0 to disable automatic disconnection.

Default: 30 seconds.

SET X25 MAXIDLETIME seconds

Defines the maximum amount of time an X.25 connection can be idle before the connection is dropped.

Range: 1-600 seconds. Specify 0 to disable automatic disconnection.

Default: 20 seconds.

SET X25 MAXRETRY number

Defines the maximum number of attempts this profile makes to establish a connection with this profile. When this limit is reached, the profile is the \"failed\" state. To reset the profile manually, dial it or reset the Eicon 1530.

Range: 0-250.

Default: 10.

SET X25 RETRYDELAY interval

Defines the amount of time to wait after a failed connection attempt, before retrying.

Range: 0-1800 seconds. Default: 5 seconds.

SET X25 MINCONTIME seconds

Defines the minimum amount of time an X.25 connection must stay connected.

Range: 0-1800 seconds.

Default: 30 seconds.

SET X25 N3 MaxRetryCount

Defines how many times an X.25 packet that is not successfully being received by the remote will be retransmitted.

Range: 0-99.

Default: 3.

SET X25 RESTOREDELAY interval

Defines how long to wait before automatically restoring a profile from “failed” state to “ready”.

Range: 1-65535 seconds. Specify 0 to disable automatic restore.

Default: 300 seconds.

A profile fails if a connection cannot be established after the Max Retries limit is reached.

SET X25 T20 T20Timer

The Packet Level Restart timer is started when a Restart Request packet is sent. It is stopped when a Restart Confirm or Restart Request packet is received. On expiration, the Packet Level interface is closed.

Range: 0-999 milliseconds.

Default: 60 milliseconds.

SET X25 T21 T21Timer

This Call Supervision timer is started when a Call Request packet is sent. It is stopped when a Call Accepted or Call Cleared packet is received. On expiration, a Clear Request packet is sent.

Range: 0-999 seconds.

Default: 60.

SET X25 T22 T22Timer

This Reset Supervision timer is started when a Reset Request packet is sent. It is stopped when a Reset Confirmed or Reset Request packet is received. On expiration, the Reset Request packet is retransmitted.

Range: 0-999 seconds.

Default: 60 seconds.

SET X25 T23 T23Timer

This Clear Supervision timer is started when a Clear Request packet is sent. It is stopped when a Clear Indication or Clear Confirmation is received. On expiration, the Clear Request packet is retransmitted.

Range: 0 to 999 seconds.

Default: 60 seconds.

SHOW X25 STATISTICS

Displays X.25 statistics.

SHOW X25 STATUS

Displays X.25 status.

SHOW X25 TRACE [mask [memsize [framesize]]]

Starts an X.25 trace, or displays an active X.25 trace.

mask:

- 01 = Data packets
- 02 = RR, RNR packets
- 04 = Reset, Interrupt packets
- 08 = Call, Clear packets
- 10 = All other packets

memsize: RAM reserved to store the trace on the Eicon 1530. Range: 1-63 KB.
Default: 16 KB.

framesize: Number of characters to show for each frame.

Note: *Note: If entered 0 or nothing the default value will be used.*

STOP X25 TRACE

Stops an active X.25 trace.

SHOW X25 CONFIGURATION

Displays X.25 configuration settings.

Regulatory and Warranty Information

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Regulatory information for the United States

Warning: Changes or modifications to this unit not expressly approved by Eicon Networks Corporation could void the user's authority to operate the equipment.

FC Declaration of Conformity

We:

Eicon Networks Corporation
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Carrollton, Texas USA 75006
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(972) 417-5500
Fax: (972) 417-5610

Declare under our sole legal responsibility that the products listed below to which this declaration relates, are in conformity with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.*

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety Notice

Use certified class 2 power supply with this equipment.

Regulatory Information for Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Safety Notice

Use certified class 2 power supply with this equipment.

Regulatory Information for Europe

EU Declaration of Conformity

- EN:** Eicon Networks Corporation declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
- DE:** Eicon Networks Corporation erklärt, daß diese Telekommunikations_eneinrichtung den grundlegenden Anforderungen und anderen relevanten Bestimmungen der Richtlinie 1999/5/EG entspricht.
- DK:** Eicon Networks Corporation erklærer, at dette udstyr er i overensstemmelse med vigtige krav og andre relevante provisioner i Direktiv 1999/5/EC.
- ES:** Eicon Networks Corporation declara que este equipo cumple con los requisitos esenciales y otras disposiciones pertinentes de la Directiva 1999/5/EC.
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- FR:** Eicon Networks Corporation déclare que cet équipement répond aux exigences essentielles et autres dispositions pertinentes de la directive 1999/5/EC.
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- IT:** La Eicon Networks Corporation certifica che la presente apparecchiatura è conforme ai requisiti di legge stabiliti nella direttiva 1999/5/EC.
- NL:** Eicon Networks Corporation verklaart, dat deze uitrusting in overeenstemming is met de essentiële vereisten en andere relevante bepalingen van Richtlijn 1999/5/EC.
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- PT:** A Eicon Networks Corporation declara que este equipamento está de acordo com os requisitos básicos e outras provisões relevantes da Directiva 1999/5/EC.
- SE:** Eicon Networks Corporation förklarar att denna utrustning överensstämmer med de väsentliga krav och regler som finns i

To receive a detailed R&TTE Declaration for this product please send a request specifying the product name to the following e-mail address: certification@eicon.com.

Safety Status

No voltages within this equipment exceed SELV voltages. This equipment draws power from an external power supply which has been separately approved.

Limited Warranty

Eicon Networks Corporation warrants to the original purchaser of this Eicon Networks Corporation Product that it is to be in good working order for a period of five (5) years from the date of purchase from Eicon Networks Corporation or an authorized Eicon Networks Corporation dealer. Should this Product, in Eicon Networks Corporation's opinion, fail to be in good working order at any time during this five year warranty period, Eicon Networks Corporation will, at its option, repair or replace this Product at no additional charge except as set forth below. Repair parts and replacement Products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become property of Eicon Networks Corporation. This Limited Warranty does not include service to repair damage to the Product resulting from accident, disaster, misuse, abuse, or non-authorized alterations, modifications, and/or repairs.

Products requiring Limited Warranty service during the warranty period should be delivered to Eicon Networks Corporation with proof of purchase. If the delivery is by mail, you agree to insure the Product or assume the risk of loss or damage in transit. You also agree to prepay shipping charges to Eicon Networks Corporation and to use the original shipping container or equivalent.

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THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM ONE JURISDICTION TO ANOTHER.

This Limited Warranty applies to hardware products only.

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